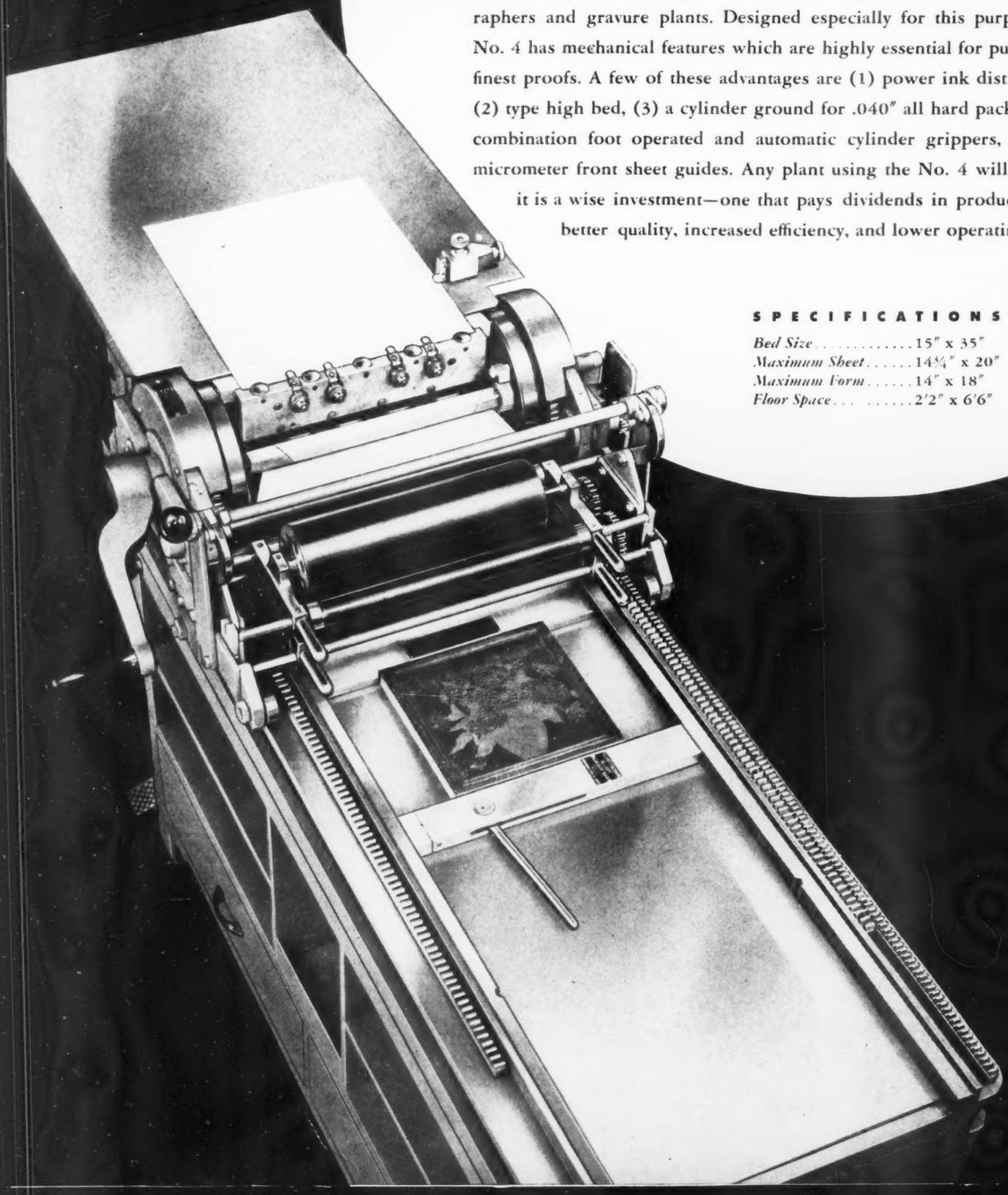
PRINTING EQUIPMENT *Engineer*

For The Finest Reproduction Proofs . . . You Need A

VANDERCOOK No. 4 PROOF PRESS

Equip your plant with the same machine so widely and successfully used for pulling top quality reproduction proofs by typesetters, offset-lithographers and gravure plants. Designed especially for this purpose, the No. 4 has mechanical features which are highly essential for pulling the finest proofs. A few of these advantages are (1) power ink distribution, (2) type high bed, (3) a cylinder ground for .040″ all hard packing, (4) combination foot operated and automatic cylinder grippers, and (5) micrometer front sheet guides. Any plant using the No. 4 will tell you it is a wise investment—one that pays dividends in production, in better quality, increased efficiency, and lower operating costs.



SPECIFICATIONS

Bed Size . . . . . 15″ x 35″
Maximum Sheet . . . . . 14¾″ x 20″
Maximum Form . . . . . 14″ x 18″
Floor Space . . . . . 2′2″ x 6′6″

. . . ILTS COSTS!

VANDERCOOK & SONS, INC. main office & plant — 900 N. KILPATRICK AVE., CHICAGO 51, ILL.

CHEERS FOR A CHAMPION!

"Our foreman is delighted with it."
"Giving excellent satisfaction."
"Doing a beautiful job."
"Best shaver we have ever purchased."
"A fine piece of equipment."
"Can do nothing but praise it."
"Working very satisfactorily."
"Tremendous improvement over previous equipment."

STA-HI
PREMIER ROTARY SHAVER

"Performing in excellent shape."
"Superb in every detail."
"Very much pleased."
"Feel sure we made a good investment."
"Has given general satisfaction."
"Pleased with its performance and attractive appearance."
"Extremely satisfactory."

The above superlatives describing the performance of the STA-HI Premier Rotary Shaver were selected from letters received from the hundreds of satisfied users of this equipment. At your request we'll gladly send you complete copies of such testimonials and detailed information on the Premier.

STA-HI

SUPERIOR NEWSPAPER PRODUCTION MACHINERY

STA-HI CORPORATION • 235 W. WASHINGTON BLVD. • WHITTIER, CALIF.

PRINTED ON GOSS PRESSES!!

The magazines named at right comprise only a partial list of the many publications printed on Goss Magazine, Rotogravure, and Multi-Color Presses. Write for current information on latest developments in equipment for periodical and commercial printing.

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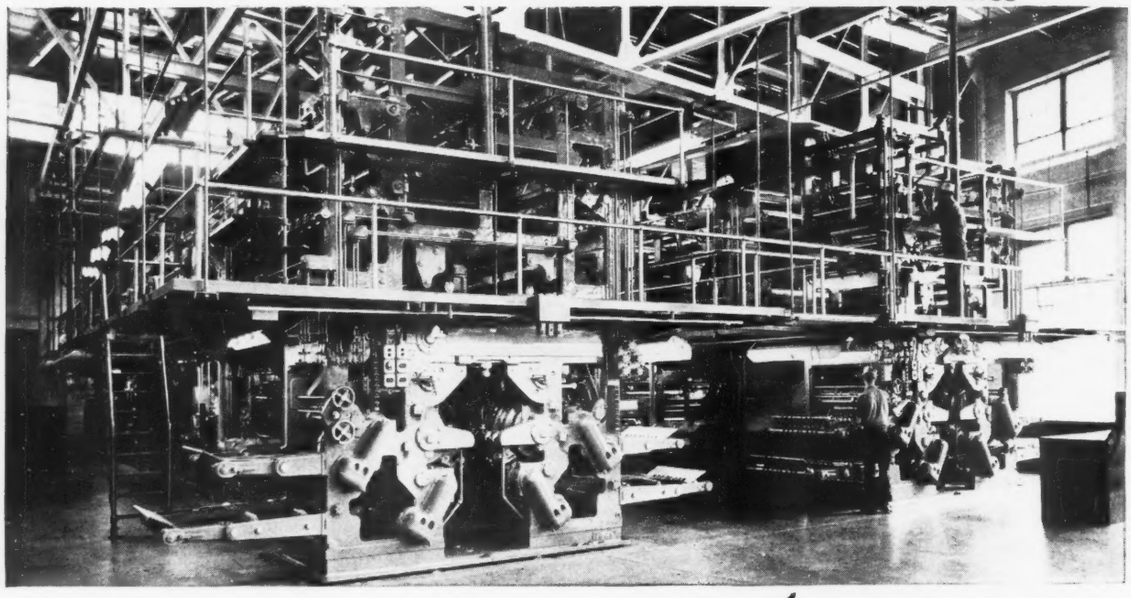
NEWSWEEK
COLLIER'S
McCALL'S
THIS WEEK
READER'S DIGEST
WOMAN'S HOME COMPANION
FAWCETT PUBLICATIONS
POPULAR SCIENCE
POPULAR MECHANICS
U. S. NEWS



it's **GOSS** *again*

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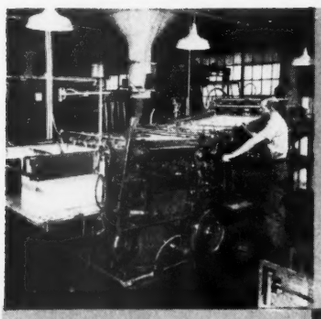
1535 S. Paulina St., Chicago 8
DUPLEX DIVISION: BATTLE CREEK, MICH. GOSS PRINTING PRESS CO., LTD., PRESTON, ENGLAND

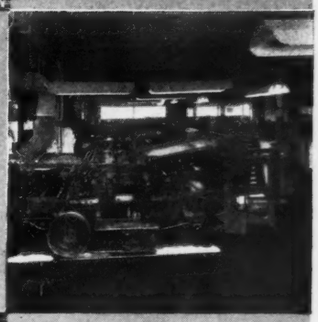


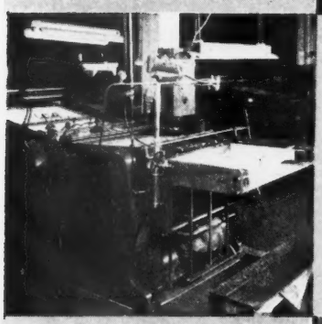
"This baby really runs smooth." Mathias Eckert, Pressman, Britt Printing and Publishing Co., St. Louis, Mo.

"They pull a very even impression, their register is extremely accurate . . ." Wm. M. Passano, President, Waverly Press, Inc., Baltimore, Md.

". . . found them to be very profitable units." A. R. Homerslag, President, Pace Press, New York, New York.

"They are fast, compact and easy to operate." Earl J. Bierbauer, Superintendent, Baring Press, Detroit, Mich.

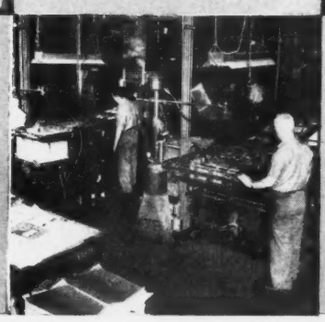




"...Miller presses are outstanding . . ." R. J. Rath, Sec. Treas., Stark Rath Printing & Publishing Co., San Francisco, Cal.

"Our Millers have surely given us good production, printing, and service." Wm. Kondla, Superintendent, C. H. Forsman Co., Inc., New York, New York.

"They are really dependable." Howard Adair, Pressman, Foote & Davies, Inc., Atlanta, Ga.



". . . We are more than pleased by the performance of our Miller . . ." Otto Driesner, Superintendent, Daily Journal of Commerce, Portland, Oregon.

North, south, east, west...

Yes everywhere...

If you contemplate the purchase of a new press, we suggest you inspect Miller automatics. Compare their size—accessibility—quality of work—maintenance cost and profitable production. We will be pleased to send upon request a booklet describing any of the six Miller presses.

miller printing machinery co. *pittsburgh 12, pa.*

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WE ARE NOW MAKING
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SHIP YOUR OLD ROLLERS
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PRINTING EQUIPMENT *Engineer*

A TECHNICAL MAGAZINE

JANUARY
1950

Volume 79 Number 4

Published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in the commercial, magazine, private plant and daily newspaper fields.

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Eighth Production Yearbook

A Valuable Reference Book For Mechanical and Production Executives

- Commercial and newspaper printing plant executives will find this encyclopediac volume of constant help.
- Sections on art, photography, photoengraving, electrotypes, duplicate plates, paper, printing processes, binding, mailing, and typography.
- Size, 8½ in. by 11¼ in.; 700 pages with 900 illustrations plus beautiful color inserts by all processes.

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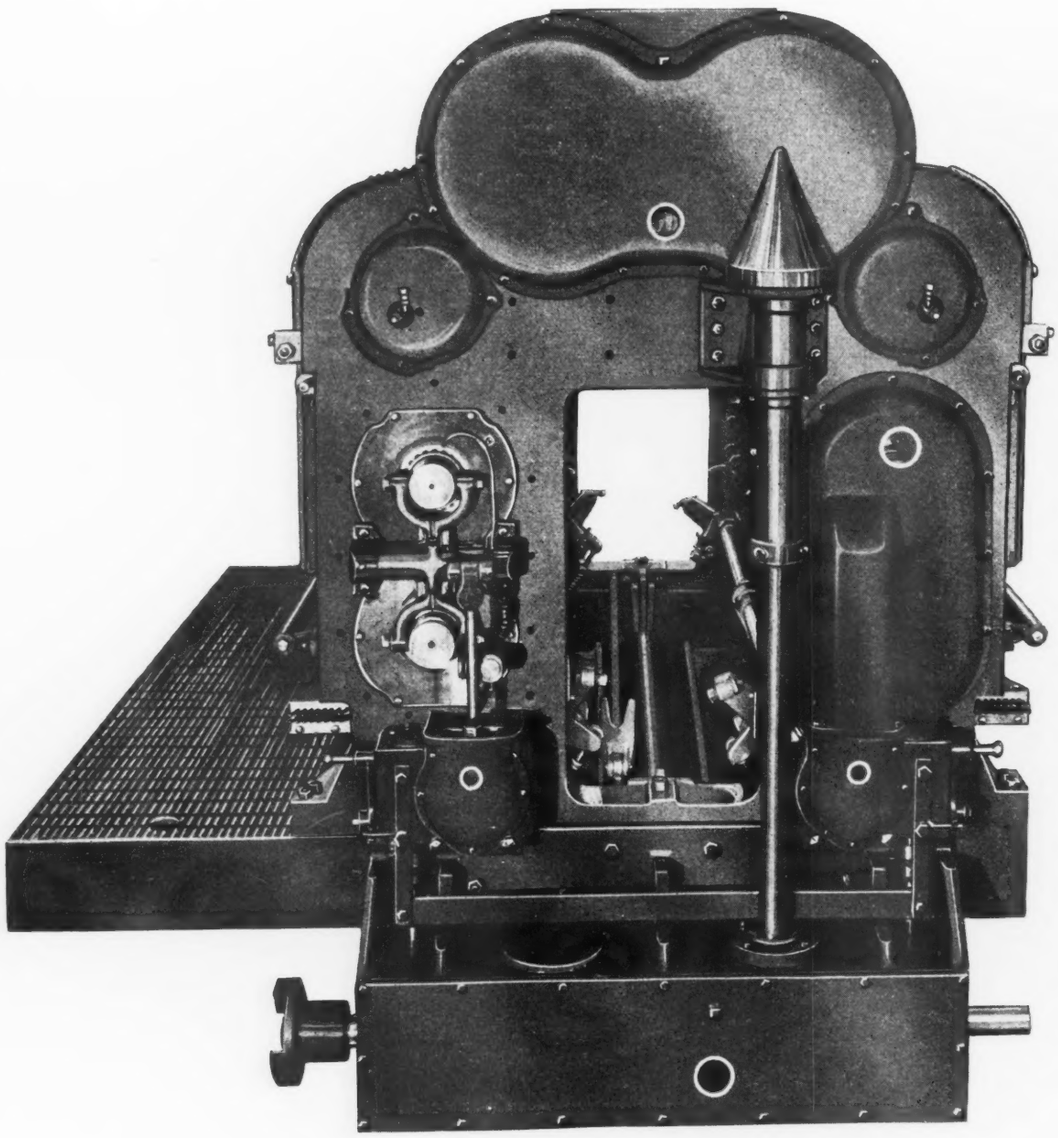


The SCOTT UNIT

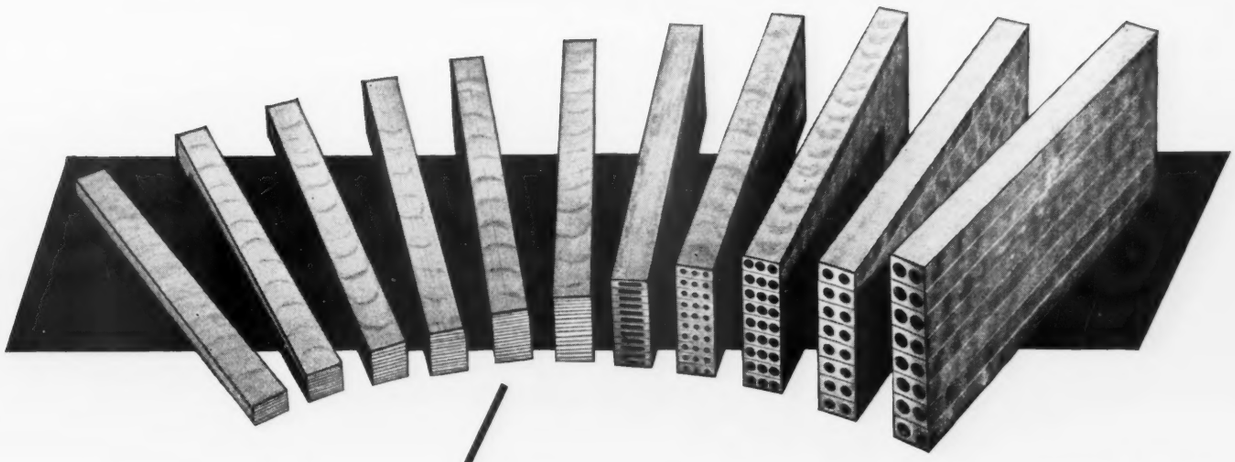
is the result of 33 years of continuous improvement—an experience longer than that of any other newspaper press builder—concentrated upon a single sound Basic Design.

"Keeping everlastingly at it" has paid off handsomely by developing the simplest and most efficient Printing Unit in existence with superior printing qualities, convenience and safety of operation, saving of valuable pressroom space and unmatched smoothness of operation. Also, it is the most powerfully geared Unit with corresponding long life.

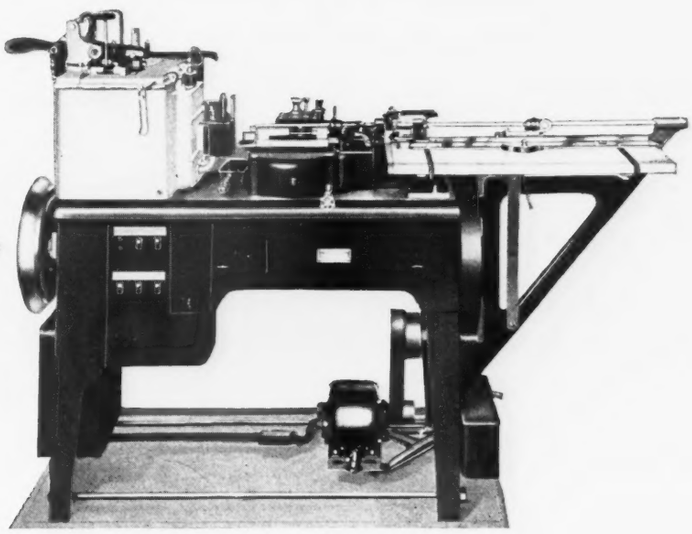
Let our representative tell you the story of the development of the SCOTT UNIT and prove our claim that it is the highest developed Newspaper Printing Unit in existence.

WALTER SCOTT & CO., INC.

PLAINFIELD, N. J.



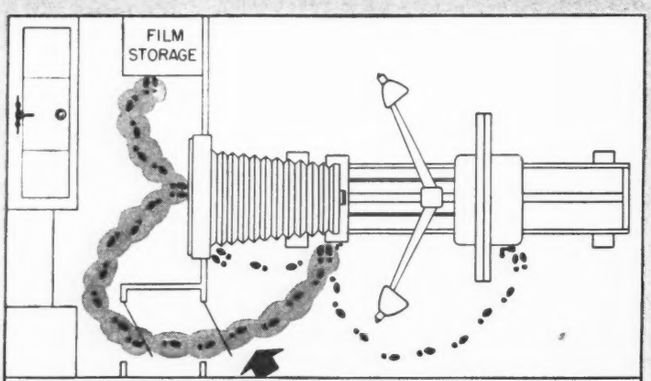
Here are aptly illustrated Elrod versatility and its wide range of product—an abundance of leads, slugs, rule border and base material from 1 point to 36 points in thickness—all from a single machine. Simple in design and mechanism, the Elrod consistently delivers an accurate product of high quality that meets exacting modern printing requirements. An Elrod installation in your plant will help to end strip material shortages, with consequent wasteful practices, and assures a continuous supply for most composing room needs. The Elrod is dependable, efficient equipment which has proved itself through the years in hundreds of important printing and publishing plants, to complete satisfaction of the user. Write us for full information as to how the Elrod will help you to lower material production costs and better the output of the composing room in your plant.



The Elrod

Ludlow Typograph Company 2032 Clybourn Avenue, Chicago 14

Footsteps cost Money . . .



SAVE THESE STEPS BETWEEN EACH SHOT BY USING A CHEMCO CAMERA

SAVE TIME . . .
SAVE EFFORT . . .

USE CHEMCO CAMERAS FOR PRECISION NEGATIVE WORK

Why overburden available manpower with unnecessary physical effort? With a Chemco camera the operator works between copy board, lens board and near-by controls until a series of shots are completed. He enters the darkroom only when one or more exposures are made since each negative has been deposited in a light tight box, easily accessible from the darkroom. When desired, a second man may be handling the darkroom work at the same time that the operator is making additional shots . . . the darkroom side of all Chemco cameras is light tight so that even with a strong light in the darkroom, shooting is not delayed. With a Chemco, the operator saves an average of 30 steps per exposure . . . he is not required to enter the darkroom to load and unload film from the camera.

A simple roll film cut-off device separates the actual piece of film being used from the roll of film located within the top of the camera case. These features mean less fatigue for the operator . . . a possibility for more shots per day with less effort.

Two screens may be housed within the camera . . . either may be instantaneously positioned by means of a simple turn of the screen control handle. Both screens may be removed for line shots by returning screens to "storage position."

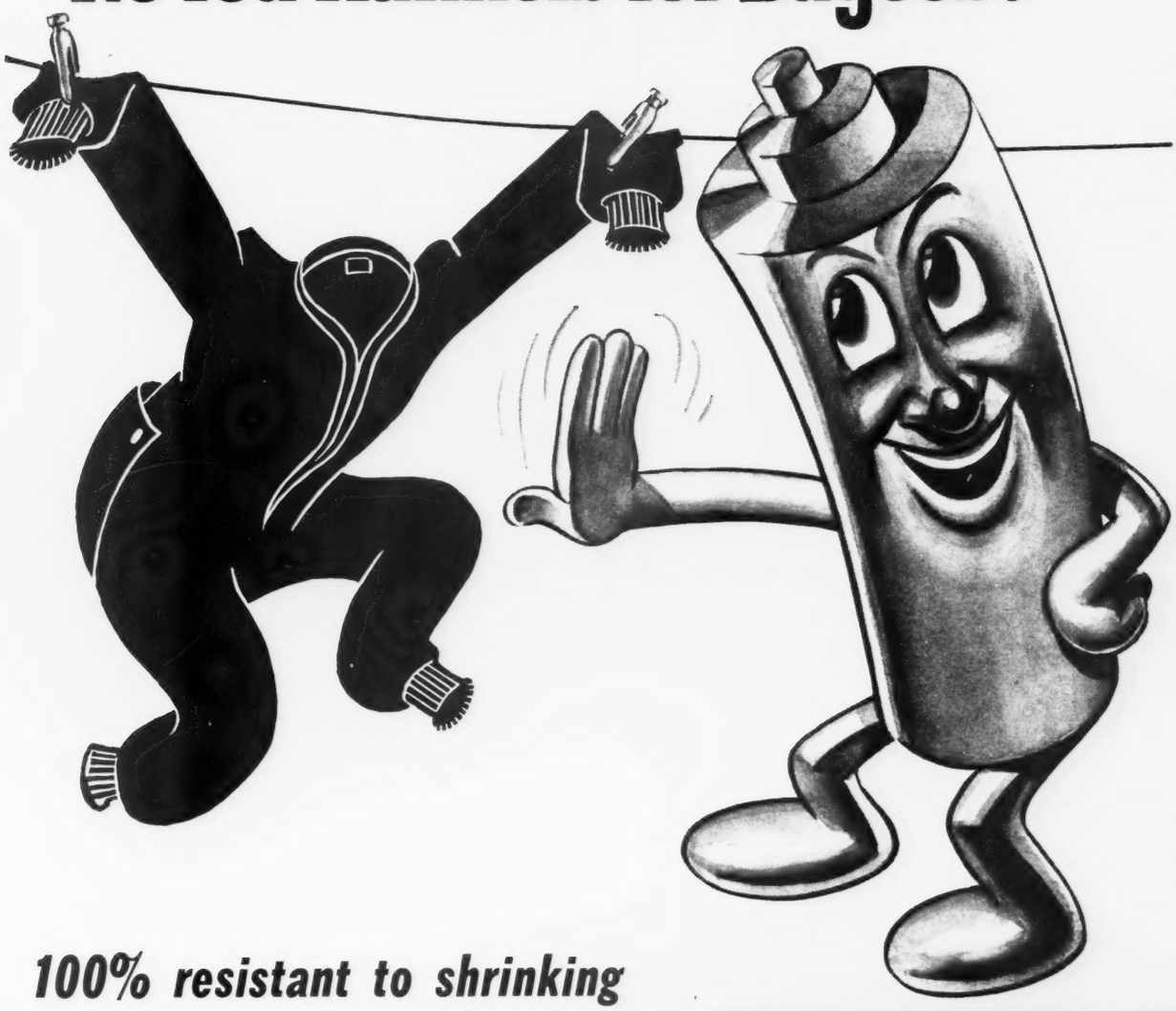
Take two minutes of your time and write for complete details on how you can save both time and effort through installation of a Chemco camera.

CHEMCO PHOTOPRODUCTS COMPANY, INC.

Factory and General Offices, Glen Cove, N.Y.

Branches: New York, Chicago, Detroit, New Orleans, Boston, Atlanta, Dallas

No red flannels for Daycos!

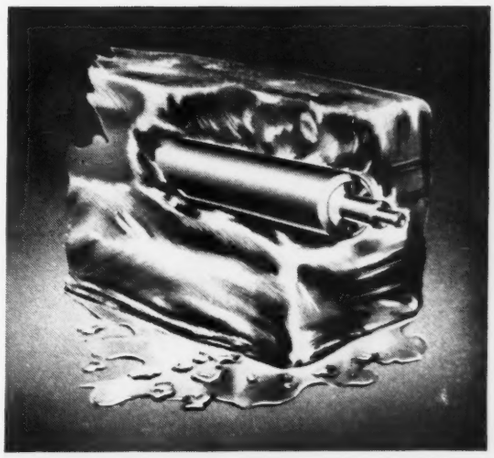


100% resistant to shrinking or hardening in cold weather!

Dayco rollers need no winter replacements, no special care in cold weather. No need to change to a winter-type roller. Daycos *roll*, whatever the weather, with no change in tack, softness or diameter.

If you want proof, take a Dayco roller to an ice company. Have them freeze it solid in a block of ice. Chip it out, put it back on the press, in any position. Caliper its diameter, note its unimpaired size, tack and softness. Then turn over the presses and watch the Dayco roller turn out the same fine printing as before.

For high-speed press runs, requiring a roller that will give millions of good impressions in any position—distributor, form or ductor—get Daycos. You'll roll, "weather" or not.



Dayton Rubber

Pioneers of Improvements for Better Printing with lithographic, letterpress and newspaper Rollers; Color Separators and Fountain Dividers.

ARE YOUR OLD PRESSES STEALING YOUR PROFITS?

Have you checked your production figures recently? In all probability they will show that your older presses can no longer compete with the newer, faster Miehles being built today. A production increase of as little as 100 sheets an hour can turn a loss into a profit!

Every press in the new Miehle line is designed to boost your production by many hundreds of impressions every hour . . . to give you more sheets per day with the same top printing quality and dependability you have learned to expect from Miehle presses. Don't miss a single profit possibility! Modernize your pressroom.

Let us show you samples of actual jobs and cost figures which will demonstrate the advantages of up-to-date Miehle equipment. Write us, or call your local Miehle representative.

MIEHLE PRINTING PRESS AND MANUFACTURING COMPANY

WORLD'S LARGEST MANUFACTURER OF SHEET FED PRESSES

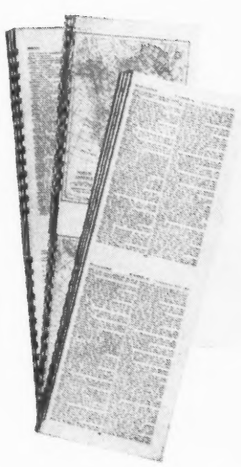
CHICAGO 8, ILLINOIS

? ? ? and answers

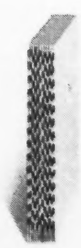
on the newly developed

DEXTER-CAHEN Notched Binding!

What is it?	A new process applicable to hard and flexible bindings: books, catalogs, booklets, magazines, in fact, to practically all publications.
What are its Advantages?	It does away with sewing and wire stitching, and makes a binding of incredible strength.
What holds the Binding Edges?	A newly developed hot melt glue which dries almost instantly. Regular cold glue also may be used.
What is the Procedure?	a. Each signature is notched after folding. b. Signatures are gathered, including end sheets and inserts, if any. c. Books are glued off before trimming. Paper bound books are glued off and cover can be attached—in one operation. Subsequent operations are the same as on any regularly sewn and bound book or other publication.
Can Books be Notched Two-up?	All books up to 6 x 9" may be notched two-up.
How is the NotchingDone?	The Dexter-Cahen Machine notches out signatures on folded edge.
What about Production Speed?	This machine is driven by an adequately powered motor with 3 to 1 speed range. Machine has a rated speed of 100 signatures per minute.
Is it possible to Round and Back Notched books?	Yes. And no "steps" will develop after book is rounded. This process rounds and backs with less effort and power than on sewn books.
Will book Open Flat?	Yes. And it will hold better than any conventional style binding.
Can the Process be Seen in Action?	Yes. We will be glad to arrange this.



Assorted sections showing notching. Depth of notch depends upon thickness of sections.



Gathered and glued-off

Forwarded book

Finished book in expensive leatherette cover. Tight back

Hard bound book

Cut flush; paper cover

Hard bound Bible, forwarded, with head band

Sold and serviced by

Dexter Folder Company

General Sales Offices

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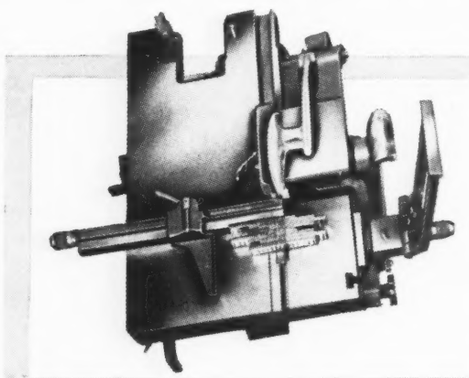
SEE MORRISON SAW TRIMMERS FIRST...

FOR MODERN COMPOSING ROOM SAVINGS

Composing room foremen and compositors say that the Morrison "obsoletes all other saw trimmers" once you see and try this really modern saw trimmer.

When you check the new Morrison features, see how they save minutes and hours in composing room operations, simplify all kinds of jobs, sawing, trimming, plain cutting or undercutting, angle and miter work, you'll appreciate this enthusiasm. They're easier to use, faster, more accurate, and much more versatile.



Exclusive . . . Radical . . .

On the Morrison, your work is clamped *back of the gauge frame* — a radical departure. You'll find this handier, easier to see, more accurate, and safer. Prevents slug fanning and jumping.

MORRISON MODEL 3-A SAW TRIMMER

With 30" x 18" table; 73-pica gauge and work-holder; emery wheel and guard; standard miter gauge; miter vise; saw blade and trimmers; waste receptacle; and many other features and optional accessories.

CHECK...

Only Morrison Saw Trimmer gives you ALL these exclusive features:

- Miter Gauge with Point Adjustment
- Patented Universal Saw Blade, with Saw Grinding Attachment
- Right and Left Hand Mitering — all Miters face up
- Miter and Lineup Gauge
- Any-Angle Gauge
- Automatic Index for Plate Cutting and Trimming Positions
- Swing out 135 Pica Extension Gauge
- Advanced Clamping Method

If you, too, want lower composing room costs, let us tell you where you can see a Morrison Saw Trimmer in use in your vicinity. Judge for yourself! Write today.

Symbol of Operating Economy

THE MORRISON COMPANY MILWAUKEE WIS.

THE *Morrison* COMPANY

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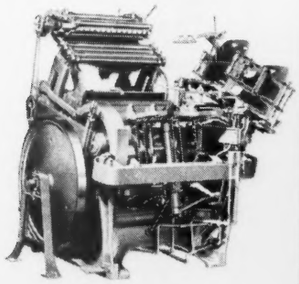
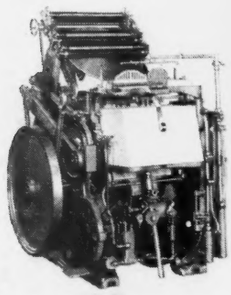
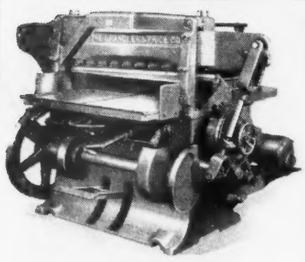
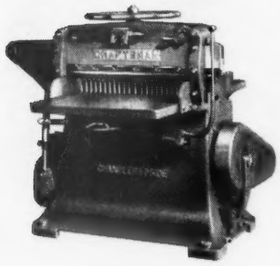
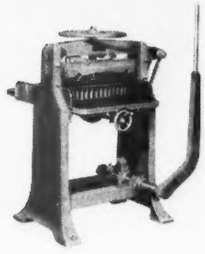
Protect Your Profits with Chandler & Price Equipment

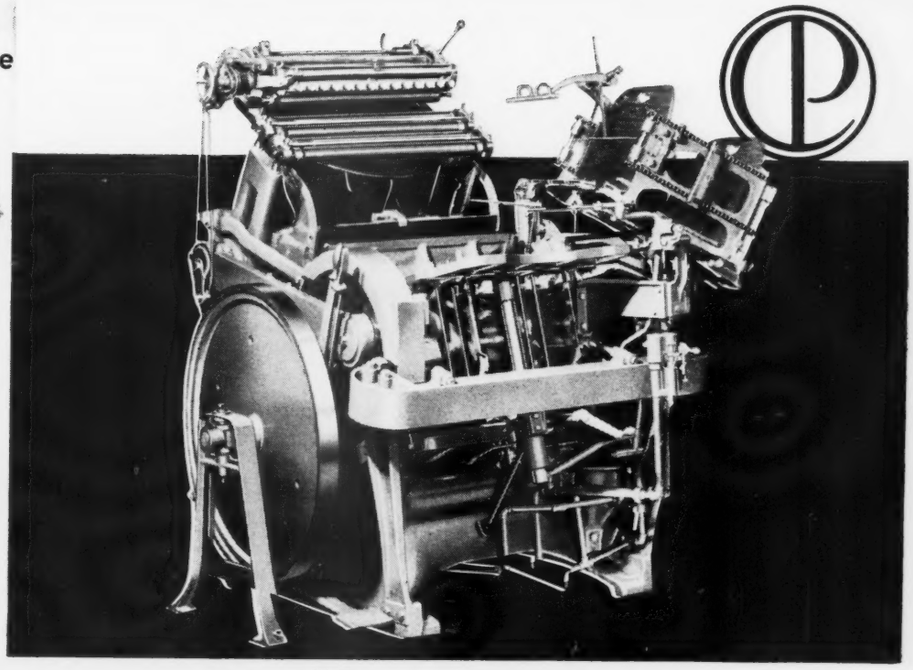












Step *Up Front* in Profitable (and specialized) operations with the

CHANDLER & PRICE SUPER HEAVY DUTY *"Front End"* AUTOMATIC PRESS

★ Truly automatic, including continuous feeding from hopper that permits loading while press is running (any stock from 13-lb. bond to heaviest cardboard, 3¼ x 5″ up to 15 13/16 x 23¼″) . . .

★ Sufficient impression strength for printing the heaviest forms, and for scoring, creasing, embossing and die-cutting . . . rectangular, round, irregular shapes, greeting cards, photomounts, cartons, book cases, and covers . . .

★ All operating controls (including ink fountain adjustments while press is running) reached from FRONT of press . . .

★ Printed sheet, form and platen in full view at all times—UP FRONT . . .

★ Delivery at FRONT, where pressman can easily check ink coverage or numbering machines (also makes slip-sheeting entirely practicable) . . .

★ Automatic throw-off of press if sheet fails to deliver . . .

THESE are a few of the features that make the Chandler & Price Super Heavy Duty 14½″ x 22″ Craftsman Automatic Press a superior producer—a press that makes regular printing and specialty printing highly profitable—a press that earns UP FRONT rank in today's finest printing plants.

Write for complete specifications.

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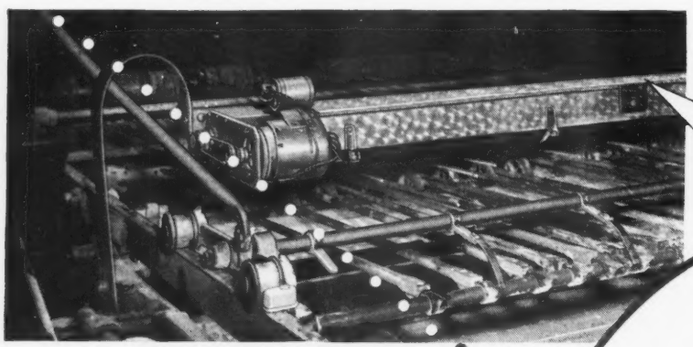
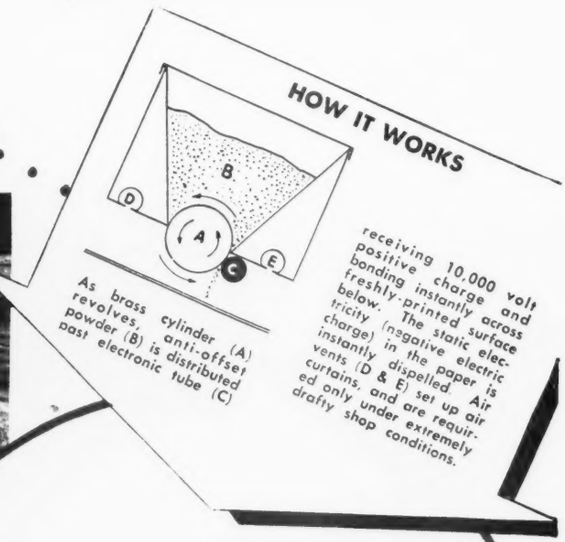
OXY-DRY means...

- "Good-Bye" OFFSET WORRIES
- Press Operation to Full Delivery Capacity




HOW IT WORKS
B
D
A
C
E
As brass cylinder (A) revolves, anti-offset powder (B) is distributed past electronic tube (C)
receiving 10,000 volt positive charge and bonding instantly across freshly-printed surface below. The static electricity (negative electric charge) in the paper is instantly dispelled. Air vents (D & E) set up air curtains, and are required only under extremely drafty shop conditions.

KEEP RUNNING

TO FULL CAPACITY OF PRESS DELIVERY WITHOUT FEAR OF OFFSET

Stopped presses make no money. OXY-DRY helps keep presses running—makes you more money because (a) Sheets can be stacked to full capacity of press delivery without trace of offset. (b) Quick drying of ink through ozone action speeds handling—helps keep delivery clear. (c) One powder-filling of unit usually lasts 24 hours running time. No press stoppage for frequent refills.

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CAN OFFER ALL THESE ADVANTAGES

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4. **FASTER HANDLING** . . . Removal of all offset danger enables printer to stack sheets, handle full skid loads, at full press delivery capacity.
5. **SAVES LABOR, STORAGE** . . . OXY-DRY offset prevention speeds delivery time, saves labor, stops waste.
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Installs on Every Type of Press . . . Works with Any Kind of Printing Process.

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. . . allows stacking of sheets to full press delivery capacity without trace of offset.

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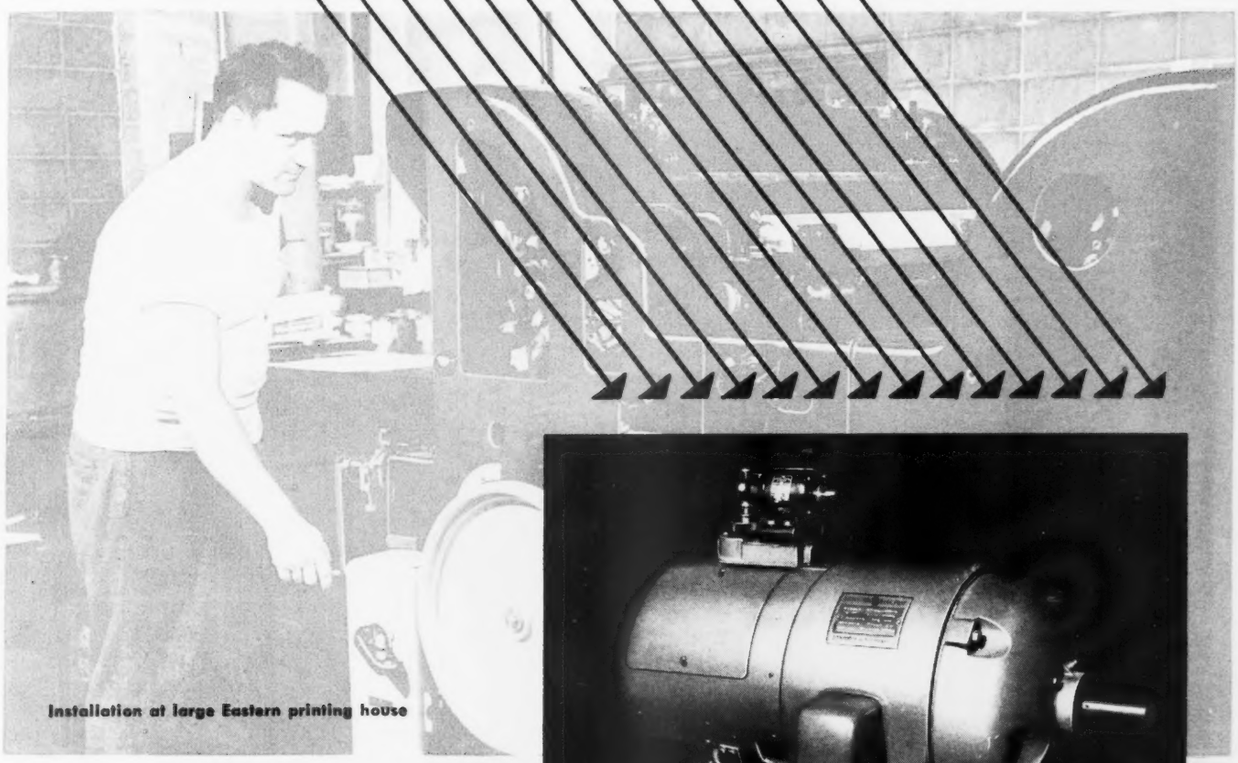
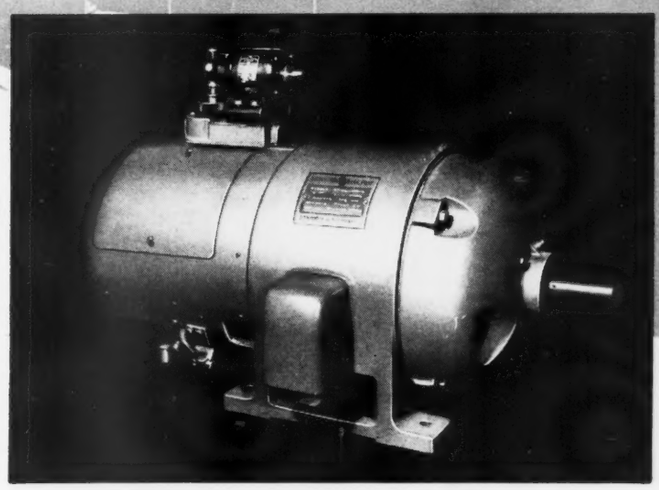


Installation at large Eastern printing house



G-E press-mounted system gives increased production at LOWER COST

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OFFERS d-c speed characteristics with a-c power advantages; holds virtually the same smooth speed under different press loads.

ALLOWS a wider printing range. Speed ranges (printing ranges) of 3-1, 6-1, and 20-1 are stock items, available immediately. Slowdown and quick stopping features are also available.

PROVES less expensive on all counts:

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For immediate information concerning this packaged drive system, contact the printing specialist in your nearest G-E office or write now for our bulletin GEA-4883. Apparatus Department, Section 653-6, General Electric Company, Schenectady, N. Y.

GENERAL ELECTRIC

653-6

WITH THE COOKSEY WEB CONTROL SYSTEM

1. A web break is immediately detected by the web detectors!

2. Instantaneously the clamp and severing device cuts and holds the cut edge of the web at the point where it enters the printing units, thus preventing any paper from jamming in the unit.

3. At the same time the "trolley" mechanism snatches the web, leaving the printing unit entirely free of paper as the press rolls to a stop.

The Cooksey System of web control eliminates most of the lost time caused by web breaks and all of the possible damage to plates and press due to wrap-ups. You need this protection on your magazine and newspaper web presses. For more information write to...

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Semi-cylindrical printing quality plus two-page jumps are yours with the Cosmopolitan Press. In black or color, the semi-cylindrical plates employed are the same as those used on the biggest rotary newspaper presses.

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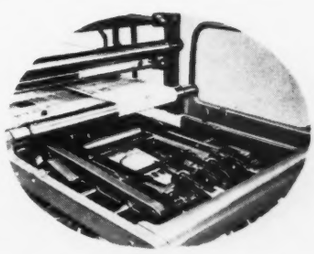
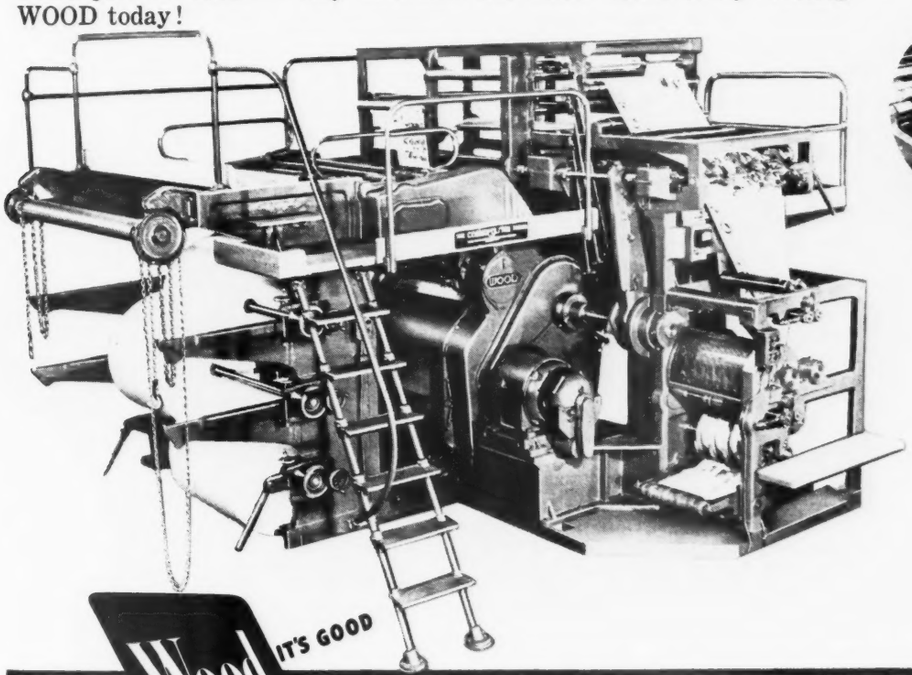
These are a few of the many features found in the new WOOD Cosmopolitan Press — why not find out more about it by writing WOOD today!



THE INTRASERTOR



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Ask *any* KELLY owner. What he says is worth more than all of our claims. But hundreds of them have told us that this time-tested workhorse can run all day, or around the clock, if need be. It's a press that has proved its ability to pay the overhead *and* a profit. It plays no favorites in jobs, but takes them as they come and turns them out quickly, at low cost of operation and always of the finest quality. Pressmen *like* KELLYS because they're easy to make ready, quick to get away, and have a minimum of down time.

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Who's Who in the Graphic Arts as suppliers of machines, equipment, accessories and service is in the making. Firms listed are exhibitors-to-be at the forthcoming Sixth Educational Graphic Arts Exposition, Sept. 11-23.

Is your firm's name in this desirable Who's Who? There are still some good exhibit spaces available. Don't delay.

"First come, first served."

•

Here's the score.

Total saleable spaces	338
Sold, as of Dec. 1	251
Available (Dec. 1)	87

Acme Steel Company
Aigner, G. J., Company
American Evatype Corporation
American Roller Company
American Type Founders Sales Corporation
Amsterdam Continental Type & Graphic Equipment, Inc.
Artype, Incorporated

Battelle Memorial Institute
Baum, Russell Ernest
Bingham Brothers Company
Bingham's, Sam'l., Son Mfg. Co.
Bookbinding & Book Production
Book Manufacturers' Institute
Brandtjen & Kluge, Inc.
Bunn, B. H., Company

Challenge Machinery Co., The
Chandler & Price Co., The
Chemco Photoproducts Co., Inc.
Chicago Steel & Wire Company
Chicago Typographers Ass'n.
Commercial Controls Corp. (Justowriter)
Consolidated Photo Engravers & Lithographers Equip. Co.
Cottrell, C. B., & Sons Co.
Craftint Manufacturing Co., The
Craftsman Line-Up Table Corp.
Cutler-Hammer, Incorporated

Dayton Rubber Company, The
Dexter Folder Company
Doyle, J. E., Company, The

Electric Boat Company (Printing Machinery Div.)
Electrographic Corporation

Force, William A., & Co., Inc.

Gane Brothers & Lane, Inc.
Gegenheimer, William
General Binding Corporation
Graeber Stringing & Wiring Machine Co.
Graphic Arts Ass'n. of Ill.
Graphic Arts Equipment Co.
Graphic Arts Monthly

Hamilton Mfg. Co., The
Hamilton Tool Company, The
Hammermill Paper Company
Hammond Machinery Builders
Harris-Seybold Company
Heinrich, H. H., Inc.
Hewson Company, The John

Ideal Roller & Mfg. Co.
Imperial Type Metal Company
Inland Printer, The
International Typographic Composition Ass'n.
Intertype Corporation

J C M Machine
Jonas, Myron, Company

Kemp, William M., Company
Kimble Electric
Kleen-Stik Products, Inc.

Lanston Monotype Machine Co.
Lawson, E. P., Company, Inc.
Lester & Wasley Company, Inc.
Lithographers' National Ass'n.
Lithographic Technical Foundation
Lewis & Co., A. F. of N. Y., Inc
Lockwood's Incorporated
Linotype Parts Company, Inc.
Ludlow Typograph Company

Macbeth Arc Lamp Company
Mann, George, & Company, Ltd.
Mergenthaler Linotype Co.
Miehle Ptg. Press & Mfg. Co.
Miller-Lauffer Ptg. Equip. Co.
Miller Printing Machinery Co.
Mohr Lino-Saw Company
Morrison Company, The
Murray Engraving Company

National Ass'n. Printing Ink Makers, Inc.
National Graphic Arts Education Ass'n.
National Lead Co. (Blatchford)
New Era Mfg. Co.
Nygren-Dahly Company

Oxy-Dry Sprayer Corporation

Paasche Airbrush Company
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Printing Equipment Engineer
Printing Industry of America
Printing Machinery Co., The
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Production Yearbook
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Rapid Roller Co.
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Regency Thermographers
Richards, J. A., Company
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Rosback, F. P., Company
Rouse, H. B., & Company
Ryan, E. G., & Company

Schaefer Machine Company
Seal-O-Matic Machine Mfg. Co.
Sheridan, T. W. & C. B., Co.
Smyth Manufacturing Co., The
Stereotex Machinery Company
Strong Electric Corporation
Super Speed Ptg. Press Co.

Taft Contracting Company
Taylor Machine Co.
Technical Trade School
Tenak Products Company
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Thomson-National Press Co.
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Speaking of Figures

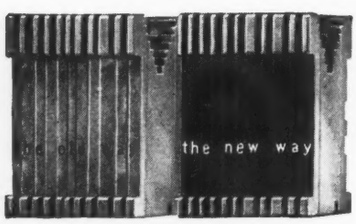
SURVEYS COVERING OVER 2,000,000 LINES OF NEWS COMPOSITION SHOW AN AVERAGE OF 1/3 FEWER ERRORS THROUGH THE USE OF MATRIX CONTRAST SERVICE.

Total and averages of 53 Newspapers

	Before Installation				After Installation			
	Total number machines in plant	Lines set	Total errors	Total errors per 100 lines	Lines set	Total errors	Total errors per 100 lines	Per cent reduction in total errors
Plants with 6 to 15 machines	195	603,402	26,009	4.31	686,344	19,314	2.81	34.80
Plants with 16 to 30 machines	371	715,450	32,177	4.50	809,901	23,982	2.96	34.22
Plants with more than 30 machines	886	828,478	51,350	6.20	868,117	37,329	4.30	30.65
	1,452	2,147,330	109,536	5.10	2,364,362	80,625	3.41	33.14

These figures represent the results of accurate audits made *before* and *after* installation of Matrix Contrast Service. All detailed figures, and in most cases the actual proof sheets audited, are available for inspection at any time (subject to authorization of the plants concerned). Note the remarkable uniformity of the average savings effected in plants of various sizes. This tabulation includes only NEWS composition. The average savings on ad composition is 44.05%.

Uncle Mat says:
Write our nearest office for complete information on the installation and maintenance of Matrix Contrast Service in your plant.



Matrix Contrast Service

MATRIX CONTRAST CORPORATION

Empire State Building, New York 1, N. Y. — 326 W. Madison Street, Chicago 6, Ill. — 1105 Trenton Street, Los Angeles 15, Calif. — Sole licensees of the Percy L. Hill Matrix Contrast Patent No. 1,796,023, other patent pending. European Agents: Funditor, Ltd., 3 Woodbridge Street, Clerkenwell Green, London, E. C. 1.

Relative Humidity—What Is It?

ABOUT 20 years ago, the Lithographic Technical Foundation conducted the first scientific investigation of relative humidity to determine how it affected lithographic operations. Today, long after it has been forgotten who laid the basis for the knowledge, these effects are rather well known in most lithographic plants. But many craftsmen are still not quite sure what the term "relative humidity" really means.

Relative humidity refers to the amount of water that is in the air expressed as a percentage of the total amount of water that the air *could* carry at the same temperature.

When temperature is not considered, the exact amount of moisture in the air is called *absolute humidity*. Absolute humidity can be measured accurately and is usually expressed as grains of moisture per pound of dry air (7000 gr. = 1 lb.).

Air of a certain temperature can hold only so much moisture. When it has all it can carry, it is said to be *saturated*. The ability of air to hold moisture is reduced when it is cooled. Regardless of how much moisture there is in the air, if the air is cooled enough it eventually becomes saturated and some of the moisture condenses out as dew or rain. The temperature at which air becomes saturated is thus called its *dew point*. The dew point varies according to the absolute humidity of the air.

There is always some moisture in the atmosphere, but the amount is usually not enough to saturate it. If the actual amount of moisture that is present is expressed as a percentage of the total amount that would saturate the air at the same temperature, the term used is *percentage saturation* or *relative humidity*.

Thus, relative humidity must always be considered as a relation between two things—moisture content and temperature. Changes in either one affects the RH. For example, let's assume a typical late fall or early spring morning. The temperature of the outside air is 40 deg. F. The air is saturated and at its dew point, that is the relative humidity is 100%. Later in the morning the temperature rises to 75 deg. F. and even though there is still the same amount of water in the air, the relative humidity drops to 29%. A typical summer day might give figures like these: Morning temperature 65 deg. F., relative humidity 100%. If the temperature goes up to 85 deg. F. and the moisture content stays the same, the RH of the air drops to 52%. Another 5 deg. rise in temperature drops the RH to 44%.

Contrary to popular belief, the Lithographic Technical Foundation has pointed out that the actual amount of water in the air at any given time is very small. For example, on a very humid summer day when the temperature is 85 deg. and the RH is near 100%, the air contains only about 2½% of moisture. But variations, even in this relatively small amount of moisture, can cause plenty of trouble with paper, in platemaking, and in the drying of inks. Due primarily to LTF's work, the effects of humidity on paper are pretty well understood but considerable research is necessary before the same can be said for its effects in platemaking and on the drying of ink.

However, with this information, you *can* see how important it is to make relative humidity measurements in the room where you work. Also, make several measurements during the day because the RH varies considerably with temperature changes in the room. Don't do like one platemaker that the Foundation heard about who adjusted his platemaking procedure for the day according to the Weather Bureau's 6 a.m. report of relative humidity at the airport.

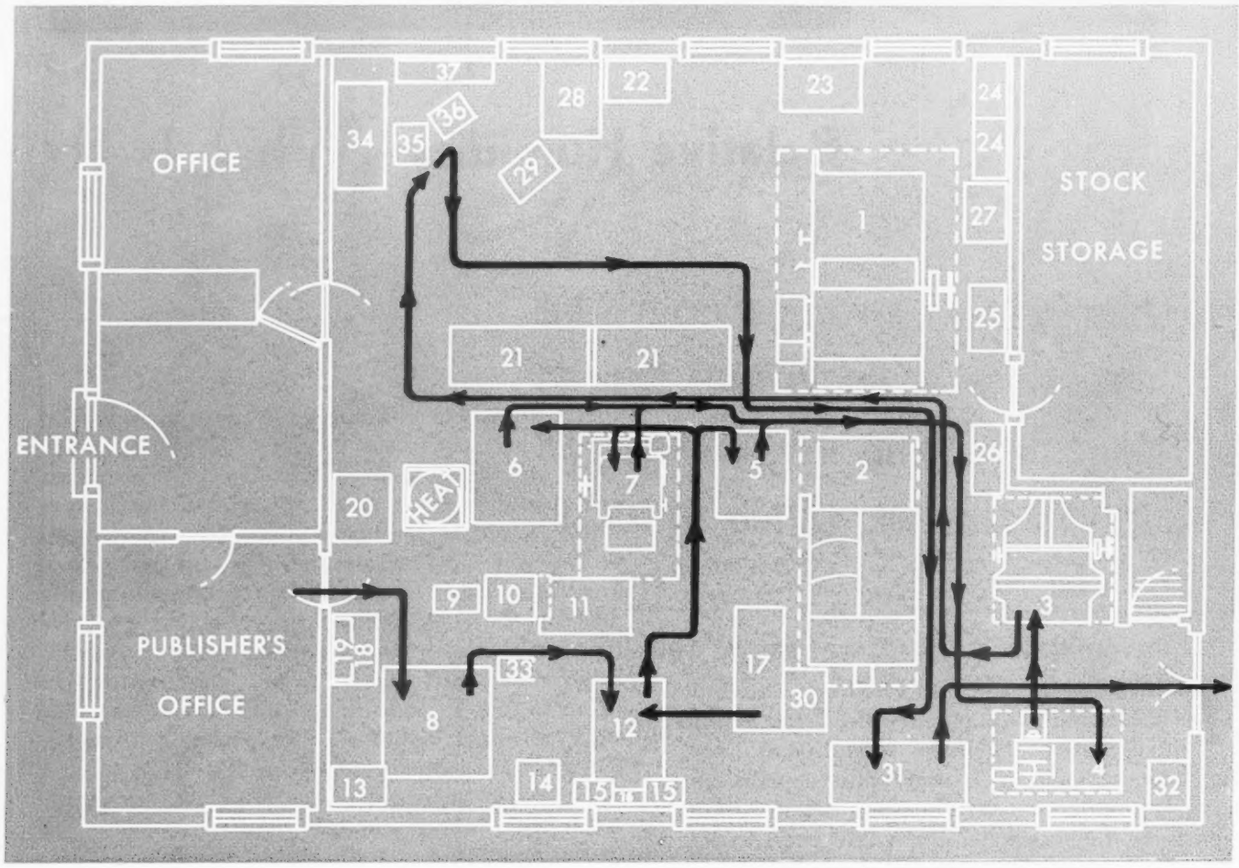


Fig. 1A.—Commercial Workflow Before Rearrangement of Equipment in Combination Weekly Newspaper and Commercial Printing Plant.

1—Babcock cylinder newspaper press
2—Eclipse newspaper folder
3—National power paper cutter
4—Baum folder
5—Chandler & Price 8 in. by 12 in platen press
6—Chandler & Price 12 in. by 18 in. platen press
7—Miehle Vertical press
8—Intertype Model C
9—Nolan Proof press
10—Trim-o-saw composing room saw-trimmer
11—Imposing table
12—Imposing table with underneath furniture, reglet and form storage
13—Magazine rack and storage cabinet
14—Machine composition dump
15—Reglet racks

Planning

In the Combination Shop

By Ralph B. Tufts

A Story of the Rearrangement of Equipment to Improve Workflow in a Combination Weekly Newspaper and Commercial Printing Plant

A GROWING interest in the application of proper design and layout in printing plants is evidenced by the increasing number of articles and technical papers treating the subject. Many of these discussions deal with the problems encountered in planning large plants and, although of academic interest at least, do not bring home to the small shop owner the value of applying good planning and careful equipment layout to his own enterprise.

Small plants, such as the one discussed in this article, often grow gradually over a period of years until the addition of new equipment "where it fits most easily," has greatly changed the physical structure of the various departments, and until they intermingle in such a way as to become little more than a mad mixture of presses, type cabinets, stones, and stitchers.

These conditions develop so gradually in many shops that the workers fail to recognize their existence. The addition of a new job cylinder press in a plant of this type is such a major step forward that perhaps the pride and excitement accompanying the new installation may overshadow the need for proper placement. "There's plenty of room over here in the corner," may be the extent of the planning in placing a new piece of equipment. This single step, in itself, may do relatively little to sidetrack or divert the proper flow of work through the shop, but over a long period of time several such additions or changes may result in amazingly poor arrangements.

The publisher of a typical weekly newspaper, with job shop combined, awoke recently to find his shop was not producing the volume of work he felt it should. Certainly this is no uncommon feeling. Sales were not the problem, since he managed to keep a comfortable backlog of orders on the books. His feeling that something needed to be done to improve production was tempered by the realization that finances would not permit any great expenditure to modernize or re-equip his plant.

Discussing the problem with this writer, it was decided that any real attack on the problem would have to be

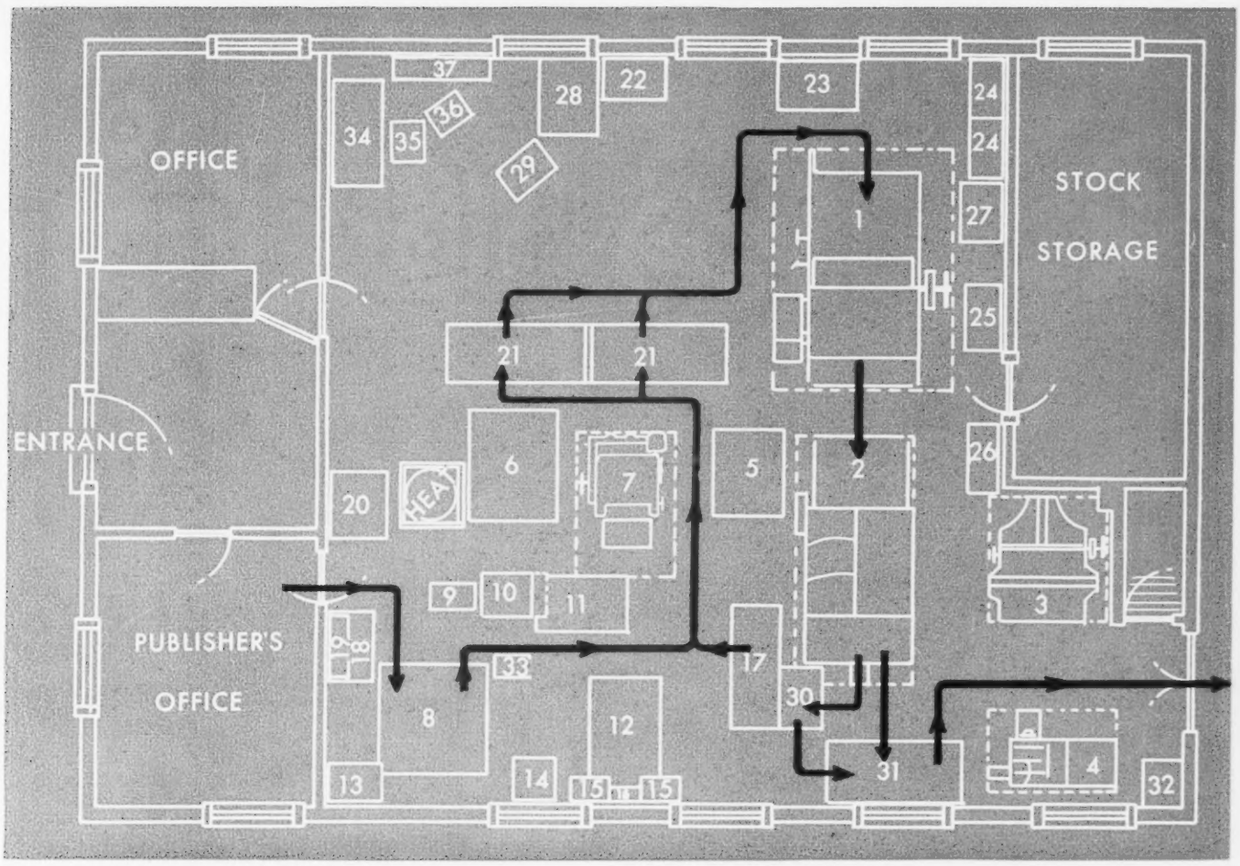


Fig. 1B.—Newspaper Workflow Before Rearrangement of Equipment in Combination Weekly Newspaper and Commercial Printing Plant.

16—Furniture rack
17—Type bank, 46 cases, lead and slug rack
18—Galley cabinet
19—Slug rack
20—Drying rack
21—Newspaper makeup tables
22—Type bank, 12 cases
23—Wood poster type cabinet
24—Cut and form storage
25—Flat top bank, 18 cases
26—Storage cabinet
27—Storage cabinet
28—Subscription and circulation desk
29—Graphotype stencil making machine
30—Addressograph machine
31—Work table
32—Sink
33—Copy table
34—Slant top desk
35—Stitcher
36—Stitcher
37—Bookcase

based on the results of a preliminary study to determine just what factors were causing this inefficient production. Recommendations could then be drawn up proposing the necessary changes or additions.

In order to best observe the bottlenecks and production difficulties, the author went into the shop and performed the regular duties of an employee, doing composition, presswork, binding, etc. Nothing was done that the regular employees did not have to do in their regular day to day performance, but working under the same conditions year after year may often hide from the worker the very things which make his job a difficult one.

Certainly, given the opportunity, some of the employees in this particular shop could have come up with at least as effective answers to these problems, and no claim to the dubious title of "expert" is intended by the author. An outsider, with fresh viewpoint, and reasonable intelligence, can often see more quickly just what points are in need of attention. On the other hand, the ideas and views of the workers are of great value and every opportunity should be taken to discuss the problems with them.

A study of the plant and equipment showed the following to be faults which required attention.

1. Inadequate lighting
2. Heat poorly distributed
3. Composing room facilities widely scattered
4. Inadequate form storage facilities
5. Insufficient supplies of strip material spacing
6. Type badly worn, poorly cared for; cases exceptionally dirty
7. Type faces and styles in poor assortment
8. Strip material in racks cut to bastard sizes
9. Composing sticks inaccurate
10. Spacing material, furniture, reglets, etc. inaccurate
11. Inadequate chase storage
12. Inadequate ink storage
13. No makeready facilities
14. 12 in. by 18 in. C&P Jobber dirty, out of adjustment, poorly cared for
15. No pressroom work table for stock, etc.
16. Folder and stitchers widely separated
17. Continuous back-tracking in work flow
18. No stock table near cutter
19. Slug cutter far from composing bank and broken
20. Saw-trimmer inaccurate
21. Proof press not easily accessible to compositor
22. Planers badly battered
23. Inadequate facilities for storage and use of solvents and cleaning cloths
24. Space poorly utilized; crowded in spots, excess in others
25. No definite system of distribution, leaving forms standing around holding up type and material
26. Justification of lines and forms difficult because of lack of sufficient material and inconsistent placement of material
27. Mechanical difficulties experienced relatively often

Of course some of these are minor problems, but they all contribute to poor production.

With the problem of expense ever present, it is one thing to determine what needs correcting, and still another to

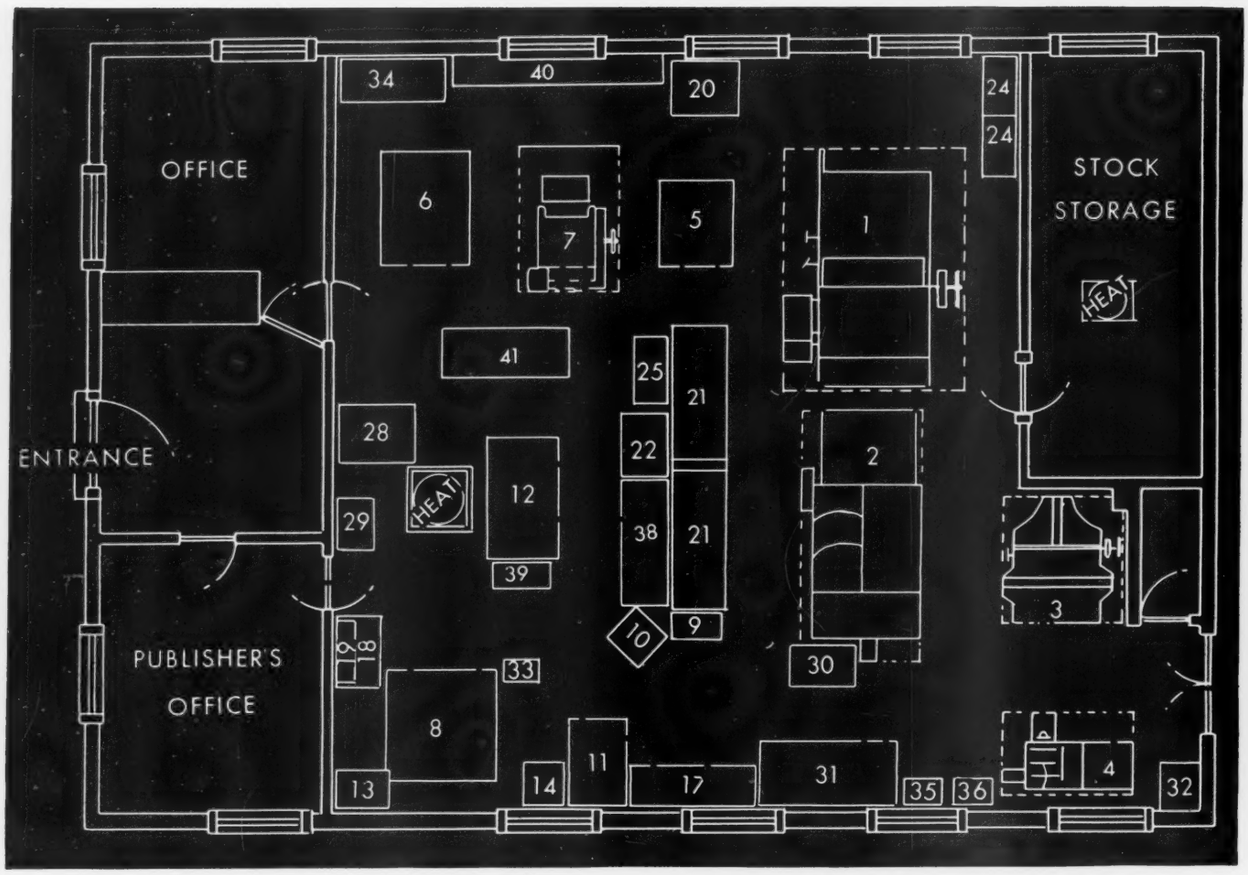


Fig. 2A.—Commercial Workflow After Rearrangement of Equipment in Combination Weekly Newspaper and Commercial Printing Plant.

1—Babcock cylinder newspaper press
2—Eclipse newspaper folder
3—National power paper cutter
4—Baum folder
5—Chandler & Price 8 in. by 12 in. platen press
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7—Miehle vertical press
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12—Imposing table with underneath furniture, reglet and form storage
13—Magazine rack and storage cabinet
14 Machine composition dump
15—Eliminated (reglet racks)
16—Eliminated (furniture rack)
17—Type bank, 46 cases, lead and slug rack
18—Galley cabinet
19 Slug rack

decide which can reasonably be done at least possible expense.

Any real solution to such a group of problems involves not only physical change in plant layout, renovation of equipment, and purchase of supplies, but also improvement in work management, and education of the shop workers in improved methods.

Attacking problems directly connected with the floor plan of even such a small plant as this involves hour upon hour of juggling templates and trying and discarding plan after plan until the arrangement with the most advantages is arrived at.

To help simplify this task, a drawing was first made of the floor area itself, showing everything except the equipment. Then, on a separate sheet, the equipment templates were drawn to scale. About a dozen blueprints of each were obtained—both the building plan and the templates. Cutting out one set of templates, we pasted them on one of the prints of the floor area in the exact positions they held when the study was begun. This became our permanent record of the plant as it was before we started. (Figs. 1A and 1B.)

Using the other prints of the floor area, and the blueprint templates of the equipment, many possible arrangements were tried. Each time a feasible looking solution was reached, the templates were pasted down and another arrangement was begun. In this way, records of all the best plans and ideas could be kept, and compared with the original layout and one another.

The diagrams Figs. 2A and 2B show the final result. This eliminated or reduced only some of the faults discovered in the original survey. A proposal was drawn up in which the adoption of this floor plan was recommended, as well as step by step recommendations for the alleviation of each of the original faults. This proposal was then reviewed and discussed at a dinner meeting of the plant employees. The opinions of the workers were asked for, and they came up with some very good suggestions as well as a general endorsement of the plan. I cannot stress too greatly the value of taking into consideration the ideas and opinions of the workers involved in a change of this kind.

Although it is not feasible to reprint here the entire proposal as presented to the publisher, I would like to touch upon some of the more important points.

The fact that it was impractical to move the newspaper press, because it rests upon a special foundation, and the expense involved in moving any other major pieces of equipment, had to be taken into consideration in every attempt at floor plans. In the recommended plan (Figs. 2A and 2B), the only pieces of equipment which had to be moved were the two C&P Jobbers and the Miehle Vertical. Although addition of more type cabinets was necessary, old open racks in storage in the cellar were enclosed and used to keep down the cost.

To improve lighting, general atmosphere, and morale, it was recommended that the entire working area be repainted, including ceiling, walls, and most of the equipment, in a harmonizing color scheme. A heat duct to the stock storage room has been added on the new plan t$_o$

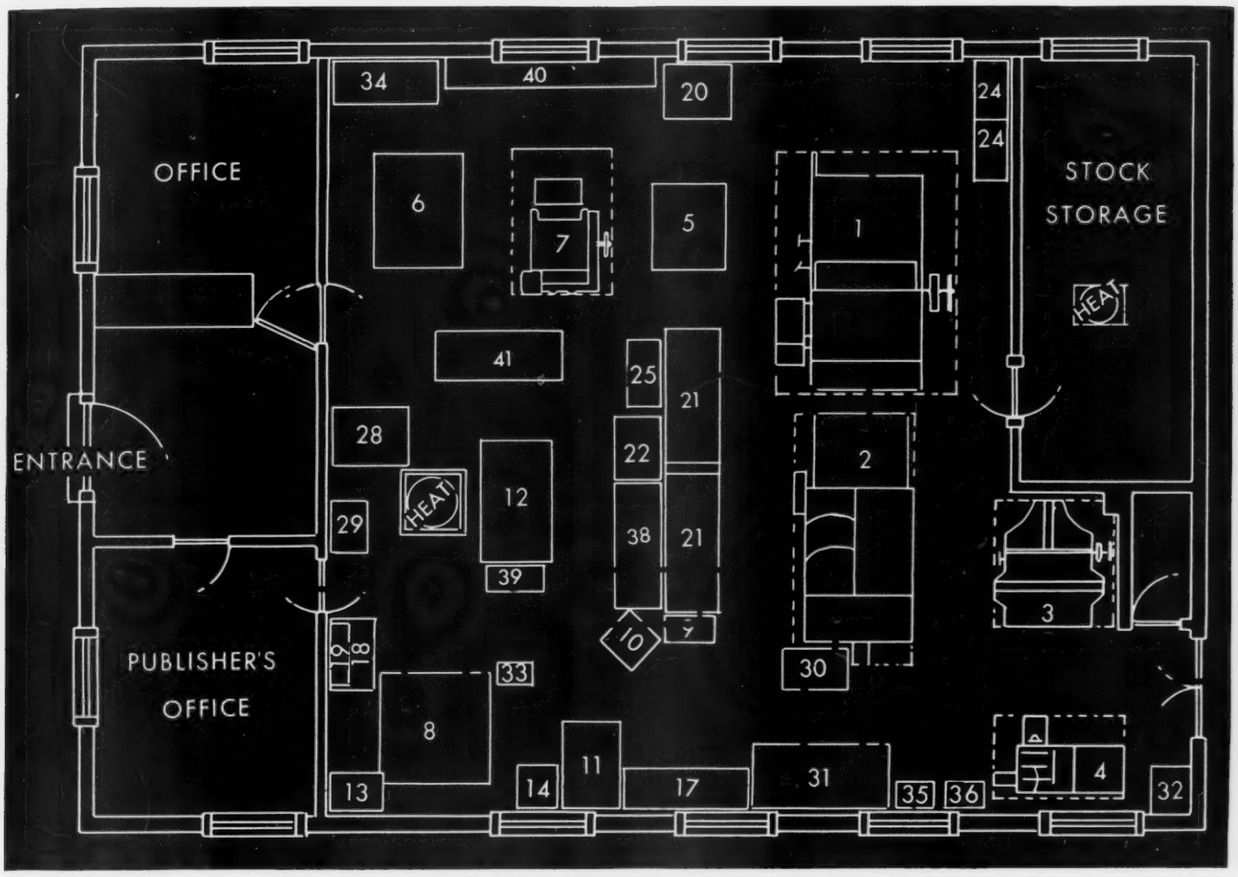

Fig. 2B.—Newspaper Workflow After Rearrangement of Equipment in Combination Weeky Newspaper and Commercial Printing Plant.

20—Drying rack
21—Newspaper makeup tables
22—Type bank, 12 cases
23—Eliminated (wood poster type cabinet)
24—Cut and form storage, and large wood type
25—Flat top bank, 18 cases
26—Eliminated (storage cabinet)
27—Eliminated Storage cabinet)
28—Subscription and circulation desk
29—Graphotype stencil making machine
30—Addressograph machine
31—Work table
32—Sink
33—Copy table
34—Makeready table
35—Stitcher
36—Stitcher
37—Eliminated (bookcase)
38—Type bank, 46 cases, lead and slug rack
39—Galley cabinet, 100 galleys
40—Pressroom tool and ink storage
41—Work table with chase storage underneath

keep stock in printable condition in cold weather.

Composing room facilities have been grouped to eliminate excessive travel between units. Newspaper composition has been separated from commercial job work, even to the extent of separate type, banks, and imposing tables. The flow of work for news and ad composition is straight, and with much less travel. The flow of work for job composition is also short and well grouped. The facilities required for both the newspaper and job composition, such as the Intertype, saw, and proof press, are easily accessible to both areas.

Cabinet 41, designed and built for the purpose, serves as a stock and finished work table for the presses, as well as chase storage convenient to both the composing room and presses.

Stitchers have been moved to a point adjacent to the job folder, where all binding and finishing operations can be concentrated in a small area. With insufficient space for a permanent work table near the cutter, it was decided that a work table on wheels should be built to serve the cutter, and for transfer of stock to and from the presses. This could be easily moved out of the way when not in use.

Purchase of Underwriters' Approved self-closing rag cans and solvent cans was recommended, as well as change-over to kerosene for press-washup instead of gasoline.

Since all mechanical equipment is fairly old, and mechanical difficulties are experienced relatively often, it was recommended that a definite schedule, spread over a period of time long enough to keep it from being a financial burden, be established for the careful checking and renovating of each piece of equipment. Each machine to be gone over by a competent person, for necessary adjustment, cleaning, replacement of worn parts, etc.

With the approval of the publisher, careful plans were made for the execution of the major changes. Rearrangement, including the moving of the two job presses, Miehle Vertical, stones, type cabinets etc., was accomplished by the regular shop personnel and the author, in one week-end without interrupting production.

Not all of the recommended steps have been taken as yet, but, in the opinion of the shop employees and the publisher, the production of the plant has been made easier, faster, less tiring, and in general more efficient.

Any small plant owner plagued, as so many are, with competition from more modern and larger plants, might do well to make a similar study of his own shop to see if through the years he hasn't allowed the development of an inefficient, poorly planned and hard-to-manage back shop.

Rubber Plate Grinder Bulletin

AN illustrated bulletin is available from O. C. Haney Co. It is descriptive of the Haco precision grinder for rubber printing plates. Consists of four pages, 7 in. by 9½ in. Printed in red and black. Specifications of the machine and operating instructions for precision grinding of rubber plates to micrometer accuracy are given.

Impression Slur— Its Cause and Cure On Offset Presses

By ROBERT F. REED*

**Research Consultant, Lithographic Technical Foundation, Inc.*

ONE of the most common defects in offset printing is the slurred impression. There are several types of slur but the most prevalent one is due primarily to excessive impression cylinder pressure. It shows up most commonly when printing coated stock but is also seen occasionally on uncoated papers.

Slurring caused by excessive impression pressure occurs principally in halftone shadows, in reverse lettering, and at the edges of solids and heavy block lettering. It may not appear at all in halftone highlights or in fine lettering. It is always at the back edge of the ink impression and looks like a "drag". In halftone shadows it may appear as a filling in, and in such cases, its true nature can be seen only by examining the middletones.

Slur due to excessive impression is often uniform from the front to the back of the sheet. This characteristic differentiates it from the "double" that sometimes occurs along the back edge due to the paper "slapping" the blanket prematurely. It may be worse in some spots than others, but the fact that it does not occur in streaks differentiates it from slurring due to a loose blanket.

Impression slur appears on the blanket as well as on the paper and can be seen if the color of the blanket permits. The plate will usually remain clean and show no slur, at least during the early part of the run. However, the slur on the blanket may eventually sensitize the plate and produce corresponding scummed areas.

Excessive Pressure

Now, let's examine the mechanics of the impression and see how excessive pressure causes slurring.

Assume that the blanket is packed exactly to bearer height and that the impression cylinder has exactly the same diameter as the blanket cylinder bearers. In this case the surfaces of the blanket and impression cylinder have exactly the same speed so long as there is no impression squeeze. There is no tendency for slippage between the two cylinders, or between either cylinder and a sheet of paper between them, so long as there is no pressure.

In order to print, however, the impression cylinder must press the paper into the rub or surface of the blanket. What happens then is shown in the diagrams.

Fig. 1 shows a typical packing condition in which the blanket is exactly at bearer height. The thickness of the paper (0.004 in.) is sufficient to provide normal printing pressure between the impression cylinder and the blanket. If the pressure were applied while the press was standing still, the blanket would bulge slightly on both sides of the impression as shown. This bulging increases the circumference of the blanket so that it actually becomes greater than that of the bearers and of the impression cylinder. Keep this fact in mind since it is at the root of this type of slurring.

Now, if the cylinders in Fig. 1 are rotated, the increase in the effective circumference of the blanket causes the condition shown in Fig. 2.

All of the excess blanket surface collects and produces a bulge ahead of the impression. The size of this one bulge will be at least equal to the combined size of the two bulges shown in Fig. 1.

If the printing is to be clean, the speed of the surfaces of the blanket and impression cylinders must be equal at bearer height (pitch line). But when the impression squeeze creates a bulge like that shown in Fig. 2, the effective diameter of the blanket cylinder is increased so that the surface of the blanket moves faster than the surface of the impression cylinder. Since the two cylinders are geared together, the blanket thus tends to lubricate the surfaces and increase the tendency for slippage.

The paper's first contact with the blanket and its first pick-up of ink, is without pressure at point *A* or the peak of the blanket bulge. As the paper moves into the nip, the blanket slips forward on the paper surface in the "area of slip" indicated in Fig. 2, until the increased pressure together with absorption of ink by the paper, produces enough friction to stop the slip at point *B*. The slippage that takes place slurs the printing.

Ordinarily, with reasonable back-cylinder pressure there is little or none of this slur in offset printing on uncoated papers. But on coated papers which are smoother and more slippery to start with, enough trouble is encountered to justify special precautions. If the back-cylinder pressure is increased for any reason, the blanket bulge becomes greater and the area of slip wider as shown in Fig. 3, and the slur becomes worse.

Three More Factors

In addition to excessive pressure there are three things that can aggrevate this type of slur. First, the greater the amount of ink being run, the more lubricating effect it will have between the blanket and paper and the worse will be the slur. Ink should therefore be run as spare as possible, especially on coated and enamel stocks. The second factor is the smoothness of the paper. The greater its smoothness the greater will be the lubricating effect of any given film of ink.

The third factor is the system of packing the plate and blanket cylinders. In Figs. 1, 2, and 3, the blanket is packed to bearer height which requires that the plate be packed to .004 inch above bearer height. If the plate is packed to bearer height and the blanket .004 inch above, the tendency to slur will be even worse since the blanket circumference will be greater to start with.

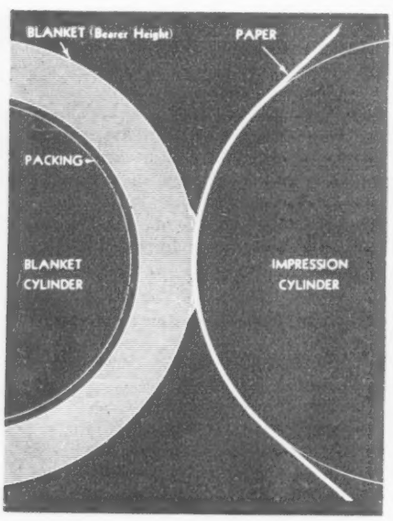

Fig. 1.

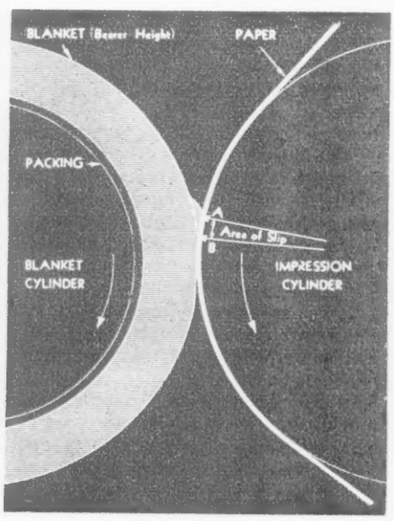

Fig. 2.

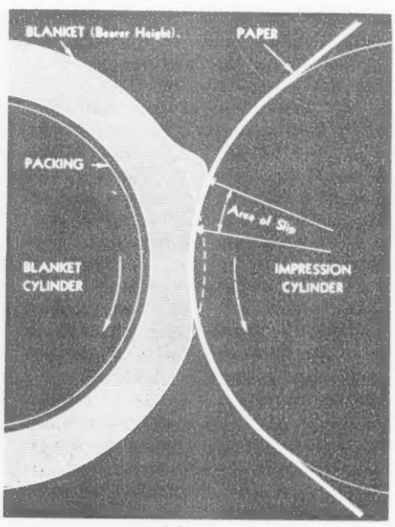

Fig. 3.

Best Conditions

For minimum slurring tendency, the blanket should be packed somewhat below bearer height and the plate correspondingly above. The desired condition is shown in Fig. 4. As in Fig. 1, the bulge in the blanket caused by the necessary pressure of the impression cylinder again increases the effective circumference of the blanket. But since the blanket is below bearer heights, the increase serves only to make its effective circumference the same as that of the impression cylinder. The compression bulge of the blanket thus becomes equal on both sides of the nip when the press is running as shown in Fig. 4. The surface speeds of the blanket and impression cylinder in the area of contact are therefore as nearly equal as it is possible to get them and there is no tendency for the blanket to slip on the paper as it passes through the nip. The same is true of the surface speeds of the plate and blanket and plate wear is minimized.

How To Pack

Just what packing system should be used for minimum slurring? The answer to this question depends on the diameters of the cylinders. The rule-of-thumb method is to (1) overpack the plate 0.0005 in. for every inch of cylinder diameter, and (2) underpack the blanket the same amount less 0.004 in. to provide squeeze pressure.[1] Thus for a press with 20 in. cylinders, the plate should be packed 0.010 in. above bearers (20 x 0.005 in.), and the blanket 0.006 in. below the bearers (0.010—0.004 in.). However, this method works correctly only if the impression cylinder is the same diameter as the built-up plate, namely 20.20 in., and is recessed opposite the bearers of the blanket cylinder. If, as in the case of most presses, the impression cylinder has about the same diameter as the bearers of the plate cylinder, you cannot go this far but must compromise.

In such a case, overpack the plate 0.00025 in. for each inch of cylinder diameter, and underpack the blanket the same amount less 0.004 in. Thus on 20 in. cylinders the plate would be 0.005 in. above bearers and the blanket 0.001 in. below. Unless the impression cylinder is recessed opposite the bearers of the blanket cylinder, this, of course, will work only for stocks 0.005 in. or more thick. Otherwise, the blanket must be packed to bearer height plus 0.004 in. minus the paper thickness. For example, if the paper is 0.003 in. thick, the blanket should be packed to 0.001 in. above bearers which is very close to the packing system shown in Figs. 1, 2, and 3. This is not ideal but it will produce good slurless printing provided the squeeze pressure is kept to a minimum and is uniform.

With regard to the squeeze or back-cylinder pressure, it is a fact that 304 thousandths is enough to produce a good impression on almost any paper. But the indicator on the back-cylinder adjustment does not always tell the truth. Many pressmen move the back cylinder up just enough to give a light "kiss" impression and then patch the blanket, if necessary, to eliminate low spots. They then move the back cylinder up 0.002 in. to 0.004 in., or enough to give a good impression. On some presses 0.002 in. to 0.004 in. is enough. On others, particularly small presses, it may be necessary to move the back cylinder up as much as 0.008 in. to 0.010 in., according to the indicator, to get a satisfactory impression. The reason for this is a combination of bearing clearance and "give" or

(*Continued on Page 54*)

[1] See U. S. Patent No. 2,036,835 to B. L. Sites, Miehle Printing Press and Mfg. Co.

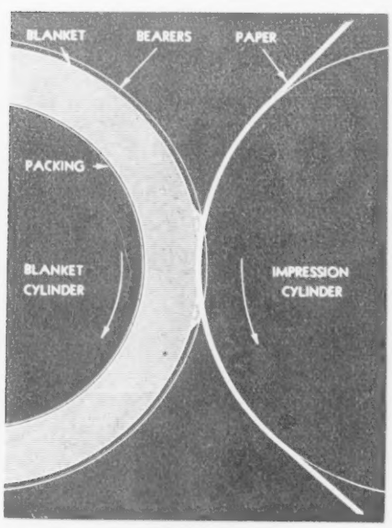

Fig. 4.

Variety in Exhibits at Exposition

IT WILL be seen already that there will be universal appeal to all printing production and mechanical executives at the Sixth Educational Graphic Arts Exposition. The Exposition will be held at Chicago's International Amphitheatre, next September 11 to 23 inclusive.

On December 20, 1949, General Manager Augustus E. Giegengack reported that out of 338 saleable exhibit spaces, 261 have been engaged, leaving available to printing equipment and supplier manufacturers 77 booths. Since then, *Printing Equipment Engineer* has been informed that a number of additional spaces have been engaged.

Mr. Giegengack also reports that ten Graphic Arts Associations will hold their 1950 meetings in Chicago concurrently with Exposition days to permit members to attend both their trade convention and the Exposition.

At the moment, it appears that nearly every phase of Graphic Arts production equipment, processes and supplies will be covered. So, if you are particularly interested in only one or two phases of equipment at the time of the Exposition, it is a certainty that you will find enough of interest to you to warrant attending the Exposition with as many of your departmental executives as your company can afford to send.

A comprehensive list of the exhibits already provided for with reference to the different branches of the Graphic Arts, has been prepared. This will enable the executive to see at a glance, the wide appeal of the exhibits. In this tabulation, a number of companies will exhibit items of interest for the first time that will pertain to more than one department in the plant, as follows:

20 Bindery Equipment and Accessories
28 Composing Room Equipment and Supplies
6 Graphic Arts Associations
4 Paper Processing and Converting Equipment
1 Materials Handling
26 Miscellaneous
1 Paper Company
28 Platemaking Equipment and Supplies (all principal methods)
22 Printing Presses
20 Press Accessories and Supplies
1 Research Exhibit
3 Wrapping and Shipping

As the forthcoming pre-convention months roll by, it is expected an even wider equipment and process coverage will be shown.

Among the exhibits will be photo-typesetting equipment, fine new presses, and many new kinds of equipment designed to execute printing in less time at lower cost.

Each printing plant production and mechanical executive should start now to either secure a budget appropriation from his management or set aside a certain amount of his salary at periodic intervals in the next seven months with which to defray travel convention and hotel expenses while in Chicago.

Exposition Poster Competition

A NATION-WIDE poster competition to produce the most striking artistic representation of the forthcoming Sixth Educational Graphic Arts Exposition to be held at International Amphitheatre, Chicago, September 11 to 23, inclusive, will be conducted under the chairmanship of Dr. R. Hunter Middleton, so A. E. Giegengack, President of the Exposition has announced.

Mr. Giegengack has made arrangements with the Society of Typographic Arts to sponsor the competition.

First prize will be $500 cash; second prize, $250; third prize, $100. Literature will be ready with all details concerning the competition by February 1.

Dr. Middleton, who is associated with the Ludlow Typograph Co., is one of the founders and a former president of the Society of Typographic Arts; a member of the Art Directors Club of Chicago, the American Institute of Graphic Arts, Chicago Club of Printing House Craftsmen, and other groups. He was recently awarded an honorary degree of Doctor of Fine Arts by Transylvania University, Lexington, Ky., for achievements in the Graphic Arts during the past 25 years.

Mr. Giegengack said that Dr. Middleton and his committee of artists and art directors will formulate the rules of the competition and announce the manner in which winners of the prizes and other awards will be selected.

"Present plans call for the exhibition of selected posters under the sponsorship of the Society of Typographic Arts at a time and place to be announced," said Mr. Giegengack. "We are much gratified over our arrangement which will insure the widest possible participation in the poster competition by art groups throughout the country."

Interest in the Exposition is increasing throughout the Graphic Arts of the world as a result of the publicity being given to it by the trade press local graphic arts groups and the exhibitors-to-be.

Research & Engineering Council

Holds two-day meeting in Rochester — Organization proposal approved—Trip through Kodak Park Research Laboratories—Council to act as correlative body in Graphic Arts research.

IT IS in the normal order of things that the Graphic Arts Industry should be marked by a feeling among the various major branches that each branch is a separate industry in itself. Each branch of the industry has its own peculiar manufacturing, technical and processing problems. It is readily granted that each of the branches are of sufficient magnitude that technological problems can best be handled separately by its own members.

Notably, research programs have been carried on by individual equipment and supplier manufacturers, and by the Lithographic Technical Foundation for a long period of years. Within the last decade, however, a number of private and organizational research programs have been established.

Why Correlate?

Thus, with the multiplicity of research programs sponsored by individual manufacturing companies, printing plants and by trade organizations there has been need for correlation of activities among the sponsors of these programs. The need for correlation, obviously, is to eliminate separate activity in the same subject and to permit (in some cases) the joining of forces to reach the objective. Such a case is the joint sponsorship of edge gilding research by a Bible firm and a company making playing cards.

Printing Equipment Engineer has a feeling that printing executives generally should be conscious of the need for research in the Graphic Arts industry and at the same time should be familiar with the organization of the Research and Engineering Council of the Graphic Arts. In the first place, the multi-billion dollar industry needs organized research to enable it to produce printed matter at less cost. Next, research activities in the industry have reached such proportions that it is advisable to maintain an organization, the company-member representatives of which will act as a coordinating and correlating body from an industry-wide standpoint.

Such were the purposes of the third meeting of the Research and Engineering Council in Rochester, New York, December 7 to 9 inclusive. About 125 printing executives, research men, physicists, engineers and chemists met to express approval of the organization, its aims and objectives for coordinating research in the Graphic Arts and also to accept 167 company membership applications.

Before we go along further with the discussion, we want to quote a few words

Frank F. Pfeiffer, Reynolds & Reynolds Co., Dayton, O., Chairman, Research and Engineering Council of the Graphic Arts meeting in Rochester, N. Y., December 8 and 9. Edward J. Triebe, Kingsport Press, Kingsport, Tenn., served as vice chairman. The Council voted unanimously to adopt proposed permanent organization plan presented to it for consideration.

Photo by Alfred Vincent, Rochester Institute of Technology.

spoken by Elliott Donnelley of R. R. Donnelley & Sons Co., who is also chairman of the Materials Handling Research Group. During one of his discussions, Mr. Donnelley stated members of the new Research and Engineering Council should strive to think from an industry-wide viewpoint; they should forget their own personalities with respect to the objectives of the Council, and work for the greatest good for the greatest number. *Printing Equipment Engineer* wants to add the comment that up to the moment every member's attitude seems to have been openhearted in every way.

Proposed Organization Approved

Council Chairman Frank F. Pfeiffer of the Reynolds & Reynolds Co., Dayton, O., presided at the sessions. He was assisted by Vice Chairman Edward J. Triebe of the Kingsport Press, Kingsport, Tenn. Mr. Triebe is also chairman of the Planning Committee.

As has been stated above, formal organization of the Council was approved. Chairman Pfeiffer keynoted the purpose of the meeting when he said: "The Council aims primarily to coordinate those who are doing research in similar fields to avoid duplication of expense and effort, to bring about publication of desirable current information, and to stimulate actual research among those groups which may wish to carry it on."

Approx. 156 research projects being undertaken at the present time were reported in bulletin form. The project and sponsoring company name or group were itemized. It is stated in the Bulletin that the listing, by no means, is complete. Some projects are confidential accordingly, the wishes of the sponsors are respected.

Research Groups

It should be explained for the benefit of those executives who are not familiar with the organization of the Research and Engineering Council, that some of the objectives are sponsored by groups from within the Council's organization. Among these are the following:

Bindery Research Group—C. Howard Thomas, Chairman, National Pub. Co., Philadelphia.

Composition Research Group—Bernard Snyder, Chairman, American Typesetting Corp., Chicago.

Engineering and Standards Research Group—Kenneth P. Morse, Chairman, Standard Register Co., Dayton, O.

Engraving Standards Research Group—Joseph Chanko, Chairman, The Conde Nast Press, Greenwich, Conn.

Ink Research Group—Dr. Wm. C. Walker, Chairman, National Printing Ink Research Group, Bethlehem, Pa. G. L. Erikson, Vice Chairman, Braden-Sutphin Ink Co., Cleveland, O.

Materials Handling Research Group—Elliott Donnelley, Chairman, R. R. Donnelley & Sons Co., Chicago.

Paper Committee Research Group—E. R. Duffie, Chairman, Meredith Pub. Co., Des Moines, Ia.

Presswork Research Group—Russell J. Hogan, Blanchard Press, New York, N. Y.

Painting and Lighting Research Group—A. S. Wentworth, Chairman, Westinghouse Electric Corp., Trafford, Pa.

Printers' Roller Research Group—Carl G. Bingham, Chairman, Sam'l Bingham's Son Mfg. Co., Chicago.

Reports on Active Research

A number of chairman of the different Research Groups were called upon by Chairman Pfeiffer to make reports of their group activities. The research and investigational activities in the Graphic Arts reported at this meeting were impressive. In this article, we can only report the speakers' discussions in sketchy fashion.

Among the research programs already under way are those related to ink, paper, presswork, bindery, type composition,

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Dayton, O.

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Washington, D. C.

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Lithographic Technical Foundation
Copifyer Lithograph Corp.
Cleveland, O.

B. L. SITES
Miehle Printing Press & Mfg. Co.
Chicago.

BERNARD SNYDER
Chairman Composition Committee
American Typesetting Corp.
Chicago.

C. HOWARD THOMAS
Chairman Bindery Committee
National Publishing Co., Inc.
Philadelphia.

DR. WM. C. WALKER
Chairman Ink Committee
National Printing Ink Research Inst.
Lehigh University
Bethlehem, Pa.

A. S. WENTWORTH
Chairman Painting & Lighting Committee
Westinghouse Electric Corp.
Trafford, Pa.

J. HOMER WINKLER
Special Representative
Battelle Memorial Institute
Columbus, O.

Decalog on Plant Layout

By A. E. GIEGENGACK*

**President, National Graphic Arts Exposition, and former U. S. Public Printer. Abstracted from opening remarks at* How To Increase Productivity Through Plant Layout Clinic, *Printing Industry of America convention, Los Angeles, November 1949. Mr. Giegengack was chairman of the meeting.*

THERE is a method of procedure which, if followed by the large or small printing plant operator, will result in a good plant layout. Based upon my own experiences and observations, I will suggest a procedure. Here are ten suggestions—a decalog on plant layout procedure:

1. Be sure you have your objective clearly in mind before you hire a contractor to move machinery or other equipment, whether it is for a new layout or one in a remodeled plant.
2. Study all possible procedures concerning printing plant layouts. Your local trade association will give you good advice.
3. Visit other plants and confer about technical details with printers and craftsmen who are willing to share their knowledge.
4. Make up a check-list of all items to be considered in your plant layout to make sure that all factors entering into your problem are before you. No item can be too insignificant to place in your list. One printing engineer whose monograph on the subject is out of print listed 80 items which he considered might influence a layout in a printing establishment.
5. When making drawings to show a proposed arrangement of equipment, be sure that every dimensional factor is accurately portrayed. Also consider floor-load, aisles, posts, pipes, and other items which non-professional men in the layout business are liable to overlook when positioning templets representing pieces of equipment.
6. When using templets, consider relative values of two and three dimensional templets. Proportionate accuracy must be stressed in making any layout.
7. Remember that your key employees have ideas worth considering and they should be given opportunity to express them.
8. If the owner of the business, or head of a corporation planning a printing plant layout, cannot devote enough time to the job, then a capable staff member should be assigned to gather all information obtainable. The alternative is to employ a trained specialist in the printing industry to do the engineering job.
9. New equipment should be installed wherever possible when a new layout is being considered. Modernization of equipment and layout, plus efficient selling of the plant's output makes for good management and will result in successful operation of a printing establishment.
10. Consult your favorite equipment manufacturers and supplymen and learn what each can offer in the way of engineering advice and helps.

the making of plates for letterpress, offset and gravure, and special processes.

The program of the National Printing Ink Research Institute and a number of ink manufacturers showed that no less than 55 objectives are being worked on.

One representative reported that work is being undertaken upon a varied number of projects which include paper spoilage in the pressroom and bindery, ink repellant substance, web press ink drying, full color copy in small quantities at economical cost, less time in which to produce color plates, less press make-ready time and the development of a rubber plate by photoengraving.

Magnesium Group

Norman Bridwell of the Graphic Arts Corp. of Ohio, reported interestingly upon an informal meeting of the Magnesium Plate group in Toledo. Among the subjects discussed at this meeting were the curving of plates in the temperature range of 350 deg. to 390 deg. F.; chrome plating of magnesium plates; cleaning plates (short storage) with an alkaline solvent and long-time storage by coating plate with a neutral oil; no method of soldering magnesium plates has yet been found; he reported upon a new brush having a neutral charge for powdering magnesium plates.

Bernard Snyder, Chairman of the Composition Research group stated that work is being undertaken to refine the process of producing cellulose acetate reproduction proofs.

C. Howard Thomas, Chairman of the Bindery Research group, said a survey is being taken of all troubles common to the industry. One of the main objectives is waste elimination. He stated the group's No. 1 project is development of an accurate product counter. Other objectives are further development of adhesives with particular reference to the work being undertaken at Battelle Memorial Institute, and on the development of specialized equipment.

Engraving Standards

Joseph Chanko, Plant Manager, the Conde Nast Press, and Chairman of the Engraving Standards Research Group, stated his group was establishing en-

(Continued on Page 56)

Approx. 125 men Associated in One Way or Another with Technical Research in the Graphic Arts Attended Rochester (N. Y.) Two-day Meeting in December. Left to right, they are: Photos by Alfred Vincent, Rochester Institute of Technology.

1.—Dr. S. H. Caldwell of Graphic Arts Research Foundation, Inc., registers for two-day meeting.

2.—Frank DeWitt, Director Graphic Arts Research, Commercial Controls Corp.; Raymond H. Lecraw, GPO Consultant, and Frank Sherman, Executive Secretary, ITCA.

3.—A. E. Giegengack, President, National Graphic Arts Expositions, Inc.

4.—Milton Zucker, IPI; George Cramer, Sinclair & Valentine; A. A. Pavlic, E. I. du Pont de Nemours; R. M. Leekley, Time, Inc.; Elliott Donnelly and Oscar Daum, R. R. Donnelly & Sons Co.

5.—John McMaster, Eastman Kodak; W. W. Garth jr., Graphic Arts Research Foundation, Inc.; Jack Landau, Lake Erie Engineering Corp., and Kimball A. Loring, President, Machine Composition Co., Boston.

6.—J. Homer Winkler, Technical Adviser, Graphic Arts Div., Battelle Memorial Institute; MacD. Sinclair, Editor, *Printing Equipment Engineer;* Herman Freund, Vice President, Intertype Corporation, and Ward Zimmerman, Kable Bros. Co., Mount Morris, Ill.

7.—Donald Ray attaches experimental acetate litho plate to Multilith as Dr. Henry Staehle of Kodak's Graphic Arts Research Laboratory looks on.

8.—James Bowler, Lowell (Mass.) *Courier-Citizen;* M. E. Strong, Rumford Press, and Ernest Schmatolla of Publishers Printing Co., New York.

9.—Jack VanDusen, Kodak Research Chemist, demonstrates processing of zinc litho plate using new experimental resist. Alexander Murray and Dr. Walter Clark look on.

10.—James Bowler, Lowell (Mass.) *Courier-Citizen* and Sam B. Anson jr., General Sales Manager, Chemco Photoproducts Co., discuss meeting at Rochester Institute of Technology.

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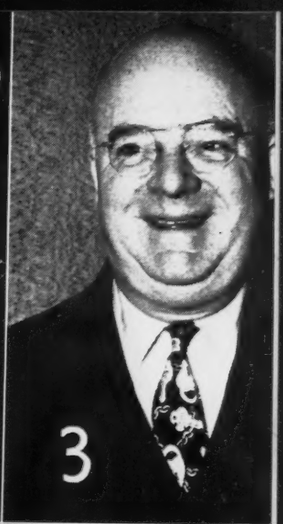
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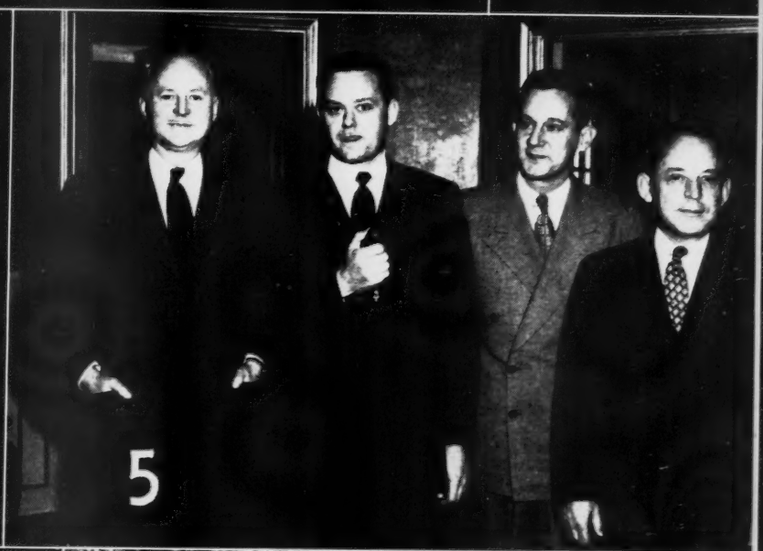
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Faith

The Stuff of Which Dreams Are Made

BY RABBI JULIUS J. NODEL

I LIKE to think of the story of Johann Gutenberg and the invention of the printing press. For in it is contained the stuff that dreams are made of. Without our dreams, without faith in our dreams, we revert to the animal in nature.

Rabbi Nodel

In a secluded room in a quiet monastery, the first glimmer of dawn was beginning to enter. In the shadows of the room lay the figure of a man slumbering in his humble cot; the figure of Johann Gutenberg.

For years, he had labored untiringly, perfecting his printing press. And this night, his task was ended. The printing press was a reality. Weary and gratified, he slept. But something troubled him. Out of the shadows of the receding night he heard a voice whispering:

"Johann Gutenberg, what have you done? This printing press, why have you created it? Did you think to liberate man from the chains of his ignorance? Fool, thou art. Do you not realize that this printing press will but serve as a tool in the hands of the tyrant? Do you not realize that under its spell, nations will be brought together only to hate each other the more? Do you not realize that this printing press will scatter the seeds of mistrust and propaganda, sowing them far and wide into the hearts of millions of innocent men? And millions will march to battlefields to maim and slaughter and bomb, all under the spell of the printed word? Johann Gutenberg, what have you done?"

Horror-stricken, Gutenberg sprang from his cot. Feverishly, he groped his way through the dark shadows, seized his invention and shattered it into fragments on the floor. Then he fell exhausted on his cot, sobbing bitterly.

But soon, out of the darkness, another voice whispered gently:

"Johann Gutenberg, what have you done? The printing press—why have you destroyed it? Did you have no faith in your dreams? Do you not know that though the printed word will darken men's hearts with hatred, it will also lead them to light and understanding and brotherhood? Do you not know that it will bring liberty and truth to mankind? Do you not realize that from it will come a new vision, a new aspiration, a new humanity? Johann Gutenberg, do you have no faith in your dreams?"

Once more the inventor arose from his cot and slowly began to grope around as the new dawn started to dispel the shadows of the room. With renewed faith, he tenderly began to re-assemble the broken fragments of the printing press. When the sun was high in the skies, many hours later, he returned to his bed, tired but happy.

As a result of his faith, the world was blessed with this great instrument of progress. In the use of it, we too, should have such faith in our dreams, that some day, there will be a generation of men washed by the ink of truth—not drowned by the blood of ignorance.

Courtesy The Cleveland *News*

EQUIPMENT & SUPPLIES

If you wish additional information concerning equipment, supplies and/or technical literature, please make your request to *Printing Equipment Engineer*, 1276 West Third St., Cleveland 13, Ohio.

Adjustable Speed Bulletins

FIVE bulletins on adjustable-speed have been announced as available from the General Electric Co. They are: Adjustable Speed (GEA-5334); Adjustable-Speed ACA Motors (GEA-4883A); Speed Variator (GEA-5335); Electronic Speed Variator (GEA-5336); and Thy-Mo-Trol Adjustable-Speed Drivers (GEA-5337).

The first of these, a 24-page, two-color booklet, presents a concise summary of the specific benefits which various branches of industry can expect from properly applied adjustable speed. It provides a check list of points to consider in selecting an adjustable-speed drive.

Equipment covered in the publication includes a.c. and d.c. adjustable-speed motors, packaged adjustable-speed drives, and various electronic devices which provide adjustable speed. The booklet concludes with a two-page fold-out comparison chart showing the performance features and characteristics of five adjustable-speed drives, a varying-speed drive, and a multispeed drive.

The other four publications, also printed in two-colors, contain descriptive and application data for the specific equipments involved, including their features, advantages, operating characteristics, and ratings.

Two-Color Rotary Press

HARRIS-SEYBOLD CO. has announced a two-color rotary letterpress which will handle sheets from 25 in. by 38 in. up to a max. 45 in. by 66 in. Known as the TRG, the press has a double-delivery system, which provides alternate delivery to two piles or delivery to a single pile while a full skid of printed sheets is removed. A three-way switch allows the operator to deliver to either of the two piles, or to both, without stopping the press.

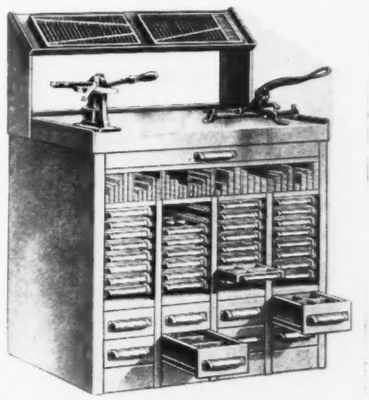
For transferring the sheet from the first printing unit to the second, the press is equipped with a double-size transfer cylinder with two sets of gripper bars. The grippers receive the sheet from the first impression cylinder and carry it around the transfer cylinder to the second impression cylinder.

The press is of unit construction with a separate plate cylinder in each printing unit for the curved electrotypes used to print from. Each printing unit is accessible from all sides of the machine. The TRG is equipped with five motors: main drive, 15 h.p., variable speed; four 3 h.p. motors, two on the feeder and two on the delivery. Other equipment includes, a V-belt drive from the drive motor to the drive pulley and a silent chain drive on the inker which is driven from the impression cylinder.

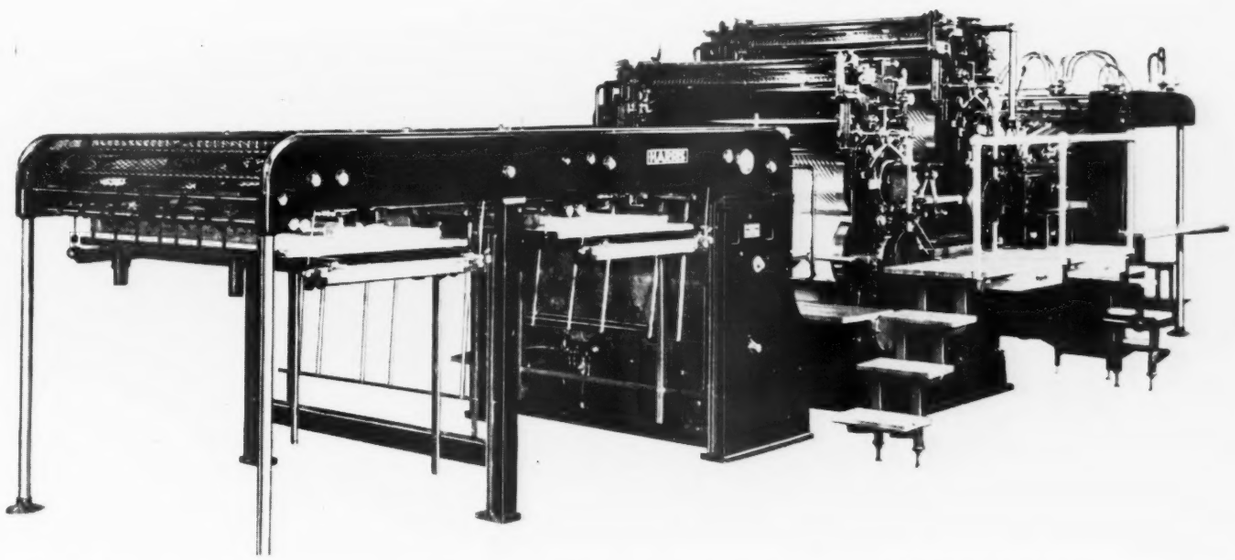
Five form rollers compose part of the inking mechanism for the Harris TRG. Specifications: 13 ft. wide; 34 ft. 9 in. long; 9 ft. 3 in. at the highest part of the press; net weight, 68,000 lbs.

Metal Feeder Bulletin

STREAMLINE Metal Feeder Co. has issued a 4 page bulletin describing the Streamline metal feeders for typesetting and typecasting machines. The feeders are illustrated in use on Elrod, Intertype, Linotype, Ludlow and Monotype machines. An inside view of the housing for the feeder's mechanism is also illustrated. Advantages claimed for the feeders are listed in this 8½ in. by 11 in. bulletin, printed in green and black.



Work Bench and Material Storage Cabinet — Hamilton Mfg. Co. has announced that the combination all steel work bench and material storage cabinet is again available. Features of the bench and cabinet include a working surface measuring 24 in. by 36 in.; a 9 in. by 37 in. sloping bank; eight storage bins for full-length strip material; 32 runs for accommodating trays for strip material or quarter-size cases; and eight drawers with four adjustable partitions in each drawer. The bench-cabinet takes floor space measuring 36 in. by 24 in. and is 35½ in. high to the working surface. Beneath the working surface is a drawer 32½ in. by 18 in. by 1⅜ in. which will take any full-size lead and slug case or rule case to hold cut-to-measure lengths.



The TRG Two-Color Rotary Letterpress Press announced by Harris-Seybold Co. The press is equipped with a double-delivery system, which provides alternate delivery to two piles or delivery to a single pile while a full skid of printed sheets is removed. Max. sheet size is 45 in. by 66 in.

Dazor Floating Magnifier

WHILE mentioned as a prime aid in inspecting reproduction type proofs, the Dazor Floating Magnifier may be used in a number of professions. Among these uses are checking press register, matching colors, examining plates, photoengraving operations, steel engraving, offset-lith platemaking, wood engraving and electrotyping.

Dazor Floating Magnifier carries 5 in., 3 diopter magnification lens. Self-illuminated. Useful for a number of purposes in the Graphic Arts.

Two models are available: The universal model may be clamped or screwed to any surface—horizontal, sloping or vertical. The pedestal floor model is portable, the arm hinge being 39 in. from the floor.

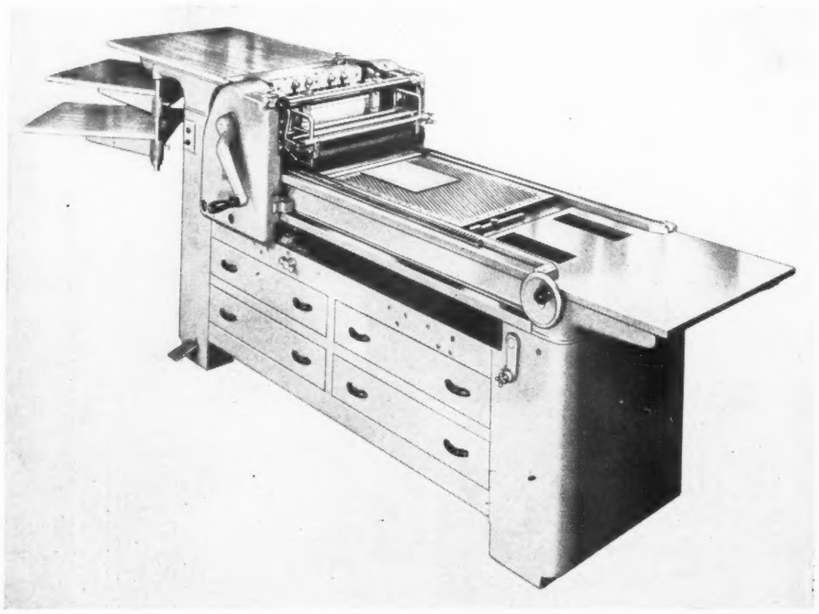
The seeing element consists of a lens to which is attached a reflector. The lens is of the double convex type, is made of crown optical glass, 5 in. diam. with a focal length of 13 in., and a power of 3 diopters. Underneath the reflector are mounted three 6 w. fluorescent tubes. Position of the lens may be raised or lowered, pushed or pulled, swung around or tilted at any angle. Available in brown or white baked enamel, both finishes over bonderizing.

Measures Heat Radiation

A CALCULATING dial designed for measuring radiation on steam and hot water heating systems has been announced by Heat-O-Meter Co. Known as the Heat-O-Meter, the sponsor claims the device can be used without previous technical training. It is claimed the correct answer is received by turning the dial. The dial contains sizes, capacities, and minimum and maximum heights on both old and new styles of radiators, mains, returns, risers, chimneys, round and sectional boilers, etc.

Offset Platemaking Kit

A COMPLETE set of Harris litho chemicals for making plates by the surface process has been announced by Harris-Seybold Co. Known as the Harris Surface Kit, each of the kits contains an illustrated instruction manual for using the chemicals. Also included are cheesecloth, cellulose towels and enough coating and chemicals to make several medium-sized surface plates for actual press runs.



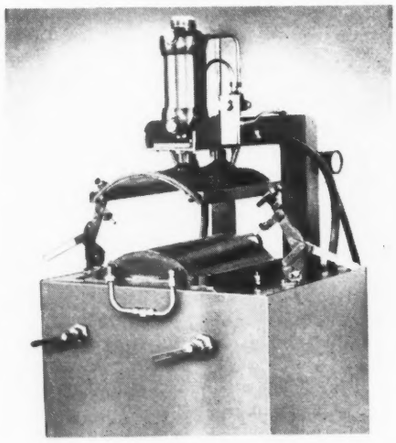
Electrotypers Proof Press—A proof press which has an adjustable bed and will enable electrotypers, photoengravers and others to prove plates of various thicknesses by raising or lowering the bed to the desired height, has been announced by Vandercook & Sons, Inc. Plates ranging from 0.060 in. to 0.300 in. thickness can be proved without changing or removing the plate base. Sponsor states it takes an operator but a few seconds to raise or lower the bed to whatever thickness plate he is proving by turning a hand wheel. To help the operator adjust the bed for plates of one thickness to another, a dial is located alongside the bed, calibrated in 0.001 in.

Air Conditioning Bulletin

NIAGARA Blower Co. states its two-page well illustrated bulletin No. 112, on *Precise Results in Air Conditioning by the Niagara Controlled Humidity Method* is available for the asking. Flow diagram (in color) illustration shows comprehensively structure and principles of the system.

Plastic Plate Curving Machine

THE Monomelt Co. has announced the development of a machine for curving plastic plates. The machine can be furnished in sizes and platen curvatures to fit all rotary presses. A feature of the machine is a flexible rubber water bag clamped to the underside of a curved upper steel platen by which uniform and controlled water pressure is applied over the entire surface of the plate. Due to the rubber's flexibility, all irregularities of the plate's surface receive even pressure, claims the sponsor, thus assuring a solid contact with the lower platen which corresponds to the curvature of the press cylinder.



Upper section of the Monomelt floor model plastic plate curving machine. The model shown is equipped with 9 in. by 11 in. platens curved for a Cottrell rotary press.

Plates to be curved are placed on a heated platen or in a hot water bath to make them pliable. Manufacturer claims the actual forming and setting of the plastic takes 90 sec. on the machine. With the plate and upper platen in working position, hot water is run through the bag and lower platen water jacket for a ½ min. This keeps the plastic soft permitting it to conform to the curve of the lower platen. Replacing the hot water with cold for the next minute sets the plastic.

An air cylinder raises and lowers the upper platen, and clamps hold it in proper position during the forming cycle. Inter-locking water valves prevent water from entering the bag except when in position under the clamps. Water pressure on the bag is controlled by a relief valve. The machine occupies a floor space of 26 in. by 21¼ in.

Blatchford Metal Booklet

NATIONAL Lead Co. has issued a 22 page booklet on Blatchford type metal entitled *Casts of Character*. The general percentages of tin, antimony and lead contained in type metal are listed for use on composing machines, stereotyping and electrotyping. Research and testing facilities employed by National are described in one section of the 5½ in. by 7¾ in. booklet. A total of 30 illustrations are used in *Casts of Character* which is printed in silver and black.

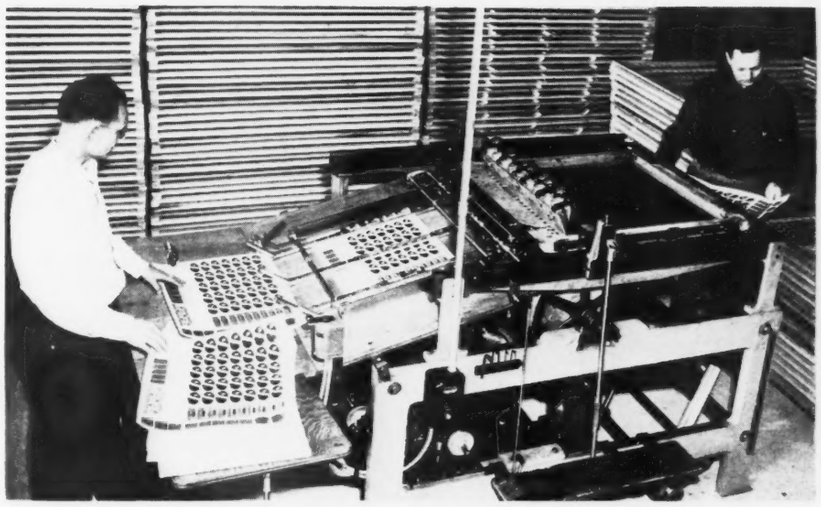
Stereo Mat Storage

HAMILTON Mfg. Co. has announced an all-steel cabinet for the storage of stereo mats, proofs and specimens. The cabinet is built in interlocking sections with separate cap and base units.

The center storage sections are furnished in two types, the five-drawer and three-drawer units. Both measure 43 in. by 32 in. with drawers 2 in. and 3¾ in. deep respectively. Each center section is 15⅜ in. high. One, two or more center sections of either or both types may be combined, together with top and base sections, to build up a cabinet of any total capacity required.

Each drawer is covered with a black coated canvas cover which is fastened to rear hood of drawer and hooks at the front for furnishing dust protection and keeping the mats flat.

Hamilton Storage Cabinet for stereo mats, proofs and specimens, is shown without top and base sections.



The 4-Star General 22 in. by 30 in. silk screen press announced by General Research and Supply Co. Designed for printing on paper, plastic, film, cardboard, etc.

Silk Screen Press

DESIGNED for printing on paper, plastic, film, cardboard, etc., is the 4-Star General Silk Screen Press announced by General Research and Supply Co. The stencils for the press are inserted without frames, which allows the stencil to be filed in tubes or a cabinet for future use.

Sponsor claims the press has a speed of 1500 sheets per hr. and upward. Halftones up to 133 line screen and line work can be accommodated by the machine, according to the manufacturer. It is also claimed that lacquers, paints, enamels, water colors, glue, heavy, stiff pastes, or any liquids of free-flowing consistency can be used on the press. The hand-fed sheets are registered by an automatic mechanical registering device. Mechanical feeding devices may be attached to eliminate hand feeding.

Specifications include: sheet size, up to 22 in. by 30 in.; floor space, 67 in. by 110 in.; height, 54 in.; drive motor, 1½ h.p.; weight, approx. 4000 lbs. The press is also available in the 30 in. by 44 in. and 38 in. by 52 in. sizes.

Choosing A Process Camera

PUBLICATION of a 24 page booklet entitled *Choosing A Process Camera* has been announced by Benjamin Sugarman, President, Consolidated Photo Engravers & Lithographers Equipment Co. Designed to provide the information necessary for the selection of the right combination of lens, camera and accessories for the specific photographic task, the booklet contains data on camera fundamentals, process optics, functional design and operation, automatic controls and time saving accessories, etc. Numerous illustrations, diagrams, and tables of data are used throughout the booklet in conjunction with the text. The material, originally presented as a survey of camera equipment in *Modern Lithography*, has been revised and expanded by the author, Herbert P. Paschel.

Sound-Proof Booth — Executone, Inc., has announced a Sound - Proof Booth, Model M-15, for intercommunication in high noise level areas. Sponsor claims that by placing the intercom station in the sound booth, a high percentage of the background shop noises are effectively absorbed, and not transmitted in the form of a disturbing blast to the station in the quiet area. Of wooden construction, the booth is lined with acoustic insulation board and is 13½ in. high by 13½ in. wide by 13½ in. deep, outside dimensions.

Gold Stamping Press—Designed for the imprinting of metallic seals on stationery, displays, etc., and imprinting on leather, wood, plastics or other thick objects, is a gold stamping press announced by the Wynn Mfg. Co. Known as the Wynnliner, the press is electrically heated, accommodates lines up to 3 in. wide, and prints from gold, silver or colored foil. Changeable type, dries, or line composing machine slugs may be used in any size up to 36 pt. Sponsor claims the Wynnliner consumes 35 w., 110 v., a.c. or d.c. current.

Monotype Thermometer

A NEWLY designed thermometer for indicating metal temperatures in the crucibles of Monotype casting machines has been developed by Newton's Machine Shop. The overall length of the supporting frame including

the tube which is immersed in the metal is 19 in. The hook at the upper end is provided to suspend the thermometer in the position usually occupied by such instruments. The thermometer dial unit with stem is floatably inserted in a tube at the bottom of the fixture. The dial itself with guard (not shown in the illustration) is 2¾ in. diam. When suspended on the machine the dial is in horizontal position. Temperature range is from 0 deg. to 800 deg. F. Sponsor states registration is obtained within 60 sec. The thermometer is ruggedly designed to withstand accidental rough handling.

Clamp Truck Bulletin

ELWELL-PARKER Electric Co. has issued an illustrated bulletin on handling roll stock with a roll clamp truck. Shown in operation is the extra-high lifting truck with secondary upright lowered, or telescoped, and a 3500 lb. roll clasped horizontally in the rotary clamp. Base of the clamp on this model is 17½ ft. from ground. A total of 16 illustrations are used to show the various models of clamp trucks, methods of tiering in the warehouse, and unloading freight cars. Cover of the 8½ in. by 11 in., 8 page bulletin, is printed in red and black.

Productimeter Counter

DURANT Mfg. Co. has announced a printing counter of the stroke type designed to provide both visual and printed records of machine production. The reading line shows the quantity registered on the counter, and an upward stroke of the printing lever prints the figures on a sheet or record form.

A lock clutch controls resetting or retention of count to prevent unauthorized resetting. The count can be accumulated for a particular time period or reset after each run and started from zero. Forms for the recorded figures are inserted face up from the front or left side of the counter, and a guide line positions the imprint. The printing action is accomplished by moving the lever up through a 90 deg. arc, at which point the figures are printed on the form.

Sponsor claims the counter has a speed of 500 counts per min. Typewriter ribbon, 3½ in. wide by 36 in. long, is used for recording counts. Available in 5 or 6 figure models. Case size, 7¼ in. by 5½ in. by 3½ in.; weight, 7½ lbs.

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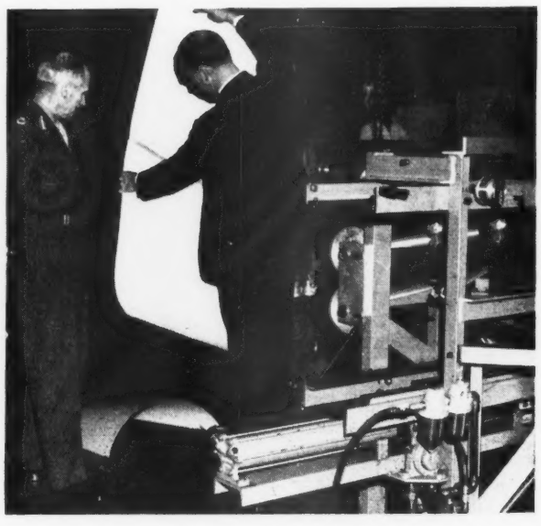
6 lb. Fire Extinguisher — Randolph Laboratories has announced a 6 lb. carbon dioxide fire extinguisher which features a thumb - trigger release and self-aimed nozzle. Sponsor states a person can operate the extinguisher with one hand from the moment it is removed from the bracket until the flames are extinguished. It is claimed the extinguisher contains 6 lbs. of non-toxic, non-damaging carbon dioxide gas, and is especially adapted to smother flammable liquid and electrical fires.

Inspects Butt Splicer— In the accompanying illustration is shown Field Marshal Viscount Montgomery having explained to him by President Raymond F. Jahn, Ford Instrument Div. of Sperry Corporation, a freshly spliced section of paper board web. Marshal Montgomery, accompanied by a party of British military and business officials, on a recent trip to this country, expressed a desire to inspect both an American ordnance manufacturing plant and a civilian equipment manufacturing plant. He was conducted on a tour of the plant in Long Island City, N. Y., which is engaged in making precision computing and controlling equipment and electronic material by President Jahn. Former chief engineer of Ford, Jahn designed much of the equipment seen by the chief of the Western Union Military forces. Included in the plant tour was a demonstration of the Sperry Rotogravure Printer and sheet pile delivery.



Lathe Operators' Handbook

PUBLICATION of the new and revised edition 49 of the book *How To Run A Lathe* has been announced by the South Bend Lathe Works. Containing 128 pages and more than 350 illustrations on the care and operation of metal-working lathes, the book may be used as a reference by experienced machinists or as a text by the apprentice or shop student. The book is available in paper binding at 25c, or in imitation leather fabrikoid binding at $1.00 a copy postpaid. May be ordered from the South Bend Lathe Works, South Bend 22, Ind.

Concrete Floor Booklet

THE Master Builders Co. has issued a 36 page booklet descriptive of the Masterplate Iron-Clad concrete floor for industrial, commercial and institutional floors. A Masterplate floor is a concrete floor having a metallic surface about ⅛ in. thick. This is produced by embedding in the surface of the concrete, while still in a plastic condition, 1 lb. or more of Masterplate per sq. ft. Masterplate is described as a metallic aggregate composed of specially processed, size-graded iron particles, combined with a cement dispersing agent. Sponsor claims the flooring is spark resistant, static disseminating, non-dusting, corrosion resistant, easy-to-clean, and can be produced with a non-slip finish. Detailed illustrated directions for laying a Masterplate floor are given.

To Market Opti-Chek

E. L. Harley, former vice president and sales manager with H. H. Heinrich, Inc., recently formed the Harley Company with headquarters at 931 76th St., Brooklyn 18, N. Y. His company will market the Opti-Chek device which is used to mount plates in register on press cylinders. Mr. Harley had been with H. H. Heinrich for 15 years.

1950

Offers Bright Prospects

By EDWARD G. WILLIAMS*

**President, American Type Founders Sales Corp.*

THE printing industry has reason to expect the coming year to be exceptionally favorable. Economists are in agreement in predicting a reasonable degree of stability and steady progress in business conditions for 1950. Perhaps the best evidence insofar as the graphic arts is concerned can be found in the plans of advertisers. There is obviously a close relation between advertisers' aggregate expenditures for advertising material and the job of printers who will produce it. Throughout the advertising field budgets for 1950 are reported to be as large as they were in 1949, and in some cases there will be increases. The effect of this, nation wise, will be to maintain mercantile activities, and consequently printing demands, on the present favorable level. This in itself argues an increase in the business level for the second half of the year. Then advertising will have had time to exert its usual stimulation on business conditions.

Edward G. Williams, President, ATF, sees good year in 1950.

Our own picture at ATF is especially promising. Our research is aimed at improving printing facilities productively and economically. The immediate future warrants a great measure of optimism.

Rosback Passes

HOMER F. ROSBACK, 49, president of F. P. Rosback Co., Benton Harbor, Mich., passed away at 3 o'clock, Saturday morning, January 7, in Mercy Hospital. Funeral services were held on Tuesday, January 10 at Methodist Peace Temple, Benton Harbor. Immediate cause of death was injuries sustained in an automobile accident on New Year's day. He is survived in the immediate family by his wife, Mrs. Hester Rosback; a daughter, Mrs. Vere Bowman and two grandsons. A sister, Mrs. Robert Kenman, also survives.

SNPA (Western Div.) Conference

The Southern Newspaper Mechanical Conference (Western Division) will be held at the Texas Hotel, Fort Worth, Tex., February 6 and 7. The Conference Executive Committee met recently at Fort Worth to prepare plans for the 1950 Conference. Mechanical department executives are urged to submit topics they would like to have discussed to the SNPA Dallas Office, 621 Texas Bank Bldg., Dallas, Tex.

Officers of the 1950 Conference are as follows: Chairman, George N. Guthrie, Little Rock (Ark.) *Gazette*; Vice Chairman, George Woodman, Ft. Worth (Tex.) *Star-Telegram*; Secretary, C. W. Tabb, SNPA Dallas Office. Members of the Executive Committee are: O. M. Harper, Tulsa (Okla.) *World-Tribune*; Houston Awalt, San Antonio (Tex.) *Express*; Ralph Moffett, Dallas (Tex.) *Times Herald*; George Woodman, Fort Worth (Tex.) *Star-Telegram*; J. Palmer Black, Jr., Amarillo (Tex.) *Globe-News*; H. W. Hartman, Houston (Tex.) *Post*; R. J. Crawford, Shreveport (La.) *Times*; Wallis A. Dupuy, Baton Rouge (La.) *State-Times & Advocate*; G. N. Guthrie, Little Rock (Ark.) *Gazette*.

Topic leaders are as follows: F. R. Rice, Little Rock (Ark.) *Democrat*, Composing Room; Elmer Hodgkinson, Oklahoma City (Okla.) Publishing Co., Stereotype; Earl White, Tulsa (Okla.) *World-Tribune*, Pressroom; Harold Juergens, Amarillo (Tex.) *Globe-News*, Machinist; L. W. Culver, Ft. Worth (Tex.) *Star-Telegram*, Photo-Engraving.

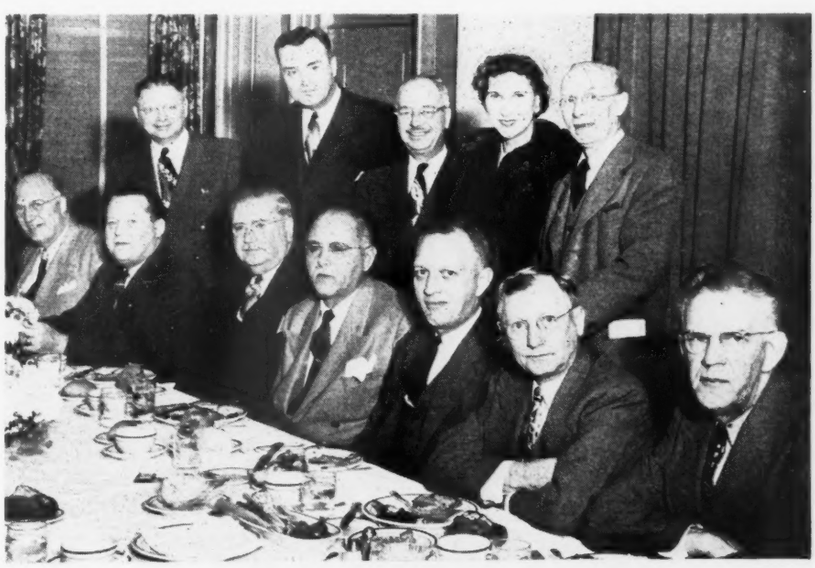
Specialized Service

A service to printing firms who wish to design and build their own specialized equipment for special types of jobs has been announced by Orville Dutro & Son, Inc. The Dutro organization, it is announced, offers a variety of specially-built, custom-designed press components for performing almost any type of specialized function.

Explaining the new service, Orville Dutro said:

"For example, a firm which is producing some type of press or paper-handling machine may require a cut-off knife, ink fountain, vibrating or oscillating unit, slitter or perforator holder, roll stand, roll brakes, roll chucks, a pile, creel or accumulating delivery or complete printing unit. Or, they may need a plate cylinder, blanket cylinder, tympan cylinder or a glass-hard anvil roller. Our organization is in a position to supply these and many other kinds of component parts or assemblies.

A catalog of the parts available, detailing special functions and sizes, with descriptions, is in preparation.



Officers and Executive Committee Elected—The following officers and executive committee were elected at a recent meeting of the Board of Directors of Graphic Arts Industry, Inc., and the Board of Trustees of Graphic Arts Educational Foundation, Inc. held at Hotel Nicollet in Minneapolis. Seated from left to right: Fred C. Schilplin, member Board of Trustees, Graphic Arts Educational Foundation, Inc., President, St. Cloud (Minn.) *Times*, and President, Security Blank Book & Printing Co.; Val Bjornson, Assoc. Editor, St. Paul (Minn.) Dispatch Pioneer-Press; Wm. J. Hickey, Vice President, Graphic Arts Industry, Inc., President, Shedd-Brown Mfg. Co., Minneapolis; James E. Whiting, retiring President, Graphic Arts Industry, Inc., President, Whiting Press, Inc., Rochester, Minn.; S. Walter Sears, President, Graphic Arts Educational Foundation, Inc., President, Mono-Trade Co., Minneapolis; W. O. Lund, member Exec. Committee, Graphic Arts Industry, Inc., President, The Lund Press, Inc., Minneapolis. Standing from left to right: C. E. Johnston, Director of Cost and Production Engineering, and Asst. Gen. Manager, Graphic Arts Industry, Inc.; P. J. Ocken, Vice President and Gen. Manager, Graphic Arts Industry, Inc., and Graphic Arts Educational Foundation, Inc.; A. R. Otteson, Vice Pres. for N. D., General Manager, The Pierce Co., Fargo, N. D.; Grace H. Downing, Exec. Secretary, and Asst. Gen. Manager, Graphic Arts Industry, Inc.; Olaf Jorgenson, member Board of Trustees, Graphic Arts Educational Foundation, Inc., President, Andersen Typesetting Co., Minneapolis.

Chicago *Tribune* A-Bomb Shelters

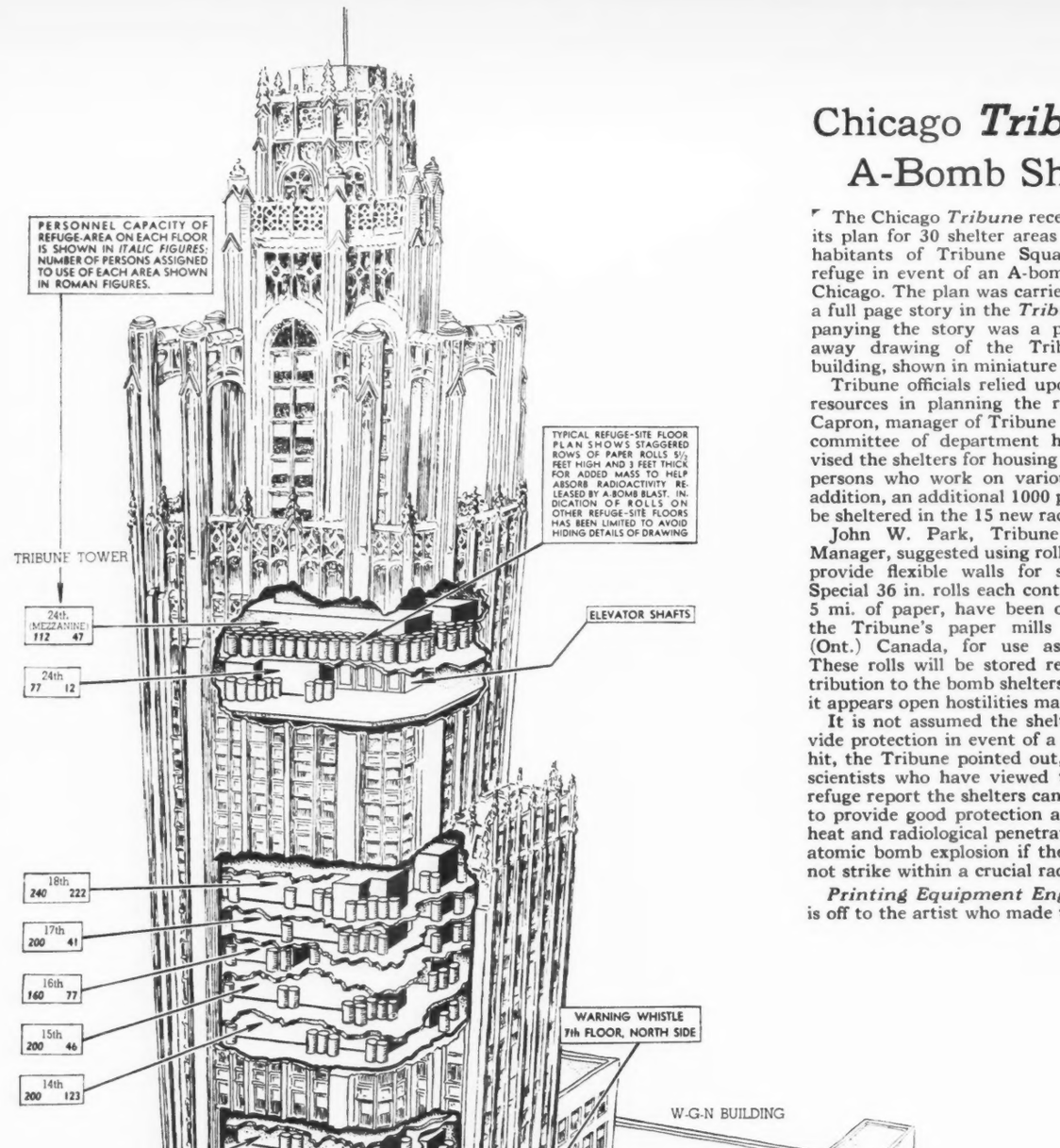
The Chicago *Tribune* recently released its plan for 30 shelter areas in which inhabitants of Tribune Square will take refuge in event of an A-bomb assault on Chicago. The plan was carried recently in a full page story in the *Tribune*. Accompanying the story was a partially cutaway drawing of the Tribune Square building, shown in miniature on this page.

Tribune officials relied upon their own resources in planning the refuge. Keith Capron, manager of Tribune Tower and a committee of department heads, improvised the shelters for housing approx. 3900 persons who work on various shifts. In addition, an additional 1000 persons could be sheltered in the 15 new radio studios.

John W. Park, Tribune Production Manager, suggested using rolls of paper to provide flexible walls for shelter sites. Special 36 in. rolls each containing about 5 mi. of paper, have been ordered from the Tribune's paper mills at Thorold (Ont.) Canada, for use as barricades. These rolls will be stored ready for distribution to the bomb shelters at any time it appears open hostilities may develop.

It is not assumed the shelters wil provide protection in event of a direct bomb hit, the Tribune pointed out, but atomic scientists who have viewed the plan for refuge report the shelters can be expected to provide good protection against blast, heat and radiological penetration from an atomic bomb explosion if the bomb does not strike within a crucial radius.

Printing Equipment Engineer's hat is off to the artist who made the drawing.


PERSONNEL CAPACITY OF REFUGE-AREA ON EACH FLOOR IS SHOWN IN ITALIC FIGURES; NUMBER OF PERSONS ASSIGNED TO USE OF EACH AREA SHOWN IN ROMAN FIGURES.
TYPICAL REFUGE-SITE FLOOR PLAN SHOWS STAGGERED ROWS OF PAPER ROLLS 5½ FEET HIGH AND 3 FEET THICK FOR ADDED MASS TO HELP ABSORB RADIOACTIVITY RELEASED BY A-BOMB BLAST. INDICATION OF ROLLS ON OTHER REFUGE-SITE FLOORS HAS BEEN LIMITED TO AVOID HIDING DETAILS OF DRAWING
TRIBUNE TOWER
ELEVATOR SHAFTS
24th (MEZZANINE) 112 47
24th 77 12
18th 240 222
17th 200 41
16th 160 77
15th 200 46
14th 200 123
WARNING WHISTLE 7th FLOOR, NORTH SIDE
W-G-N BUILDING
LIGHT COURT
11th 96 65
10th 139 139
9th 130 99
8th 73 64
7th 74 74
6th 67 54
5th 120 106
4th 250 166
3rd 278 251
2nd 200 143
COMMAND POST
TRIBUNE PLANT
6th 20 14
5th 75 57
4th 70 54
3rd 100 50
2nd 80 76
ST. CLAIR ST.
REEL ROOM 80 30
BOILER ROOM (MEZZANINE) 80
BOILER ROOM 80 10
PRESS ROOM 80 65
REEL ROOM 120 50
PRESS ROOM 100 78
PRESS ROOM 320 220
2nd 48 47

Infra-red Drier for Rotary Presses

CHARLES C. DOYLE, manufacturer of printing press infra-red ink drying devices, has been granted U. S. Patent No. 2,479,913 for application of infra-red ink drying equipment for use on rotary web letterpress printing presses and offset web printing presses. The new automatic infra-red drying devices may be applied also to textile printing and processing and paper printing and converting machines and the like in which webs of material are printed or fabricated continuously, similar in passage through the machine, as in rotary web press printing.

On a web or rotary press, the new Doyle device is intended to prevent offset or smut either in the sheeter, folder or rewind from first or second impression side of the printing.

The Doyle infra-red heaters are of the open-glow coil type extending across sheet or web, above and/or below it at suitable distance from the paper surface.

It is well known that unless the heating units are retracted from the paper surface bearing the freshly printed ink, when the press is stopped, the residual heat in the coils will scorch the paper. Obviously, if the heating units are not placed in proper proximity to the paper surface, their utility as an ink-drying means is nil. Without going into descriptive detail, the new Doyle patent provides for the movement of the heating units to and from the paper surface by automatic mechanical or electrical means, as well as by manually operated means. Thus, in a printing press, when the pressman wishes to stop the press, means are provided for retractably moving the heating units automatically from the paper surface when the motor stop button is depressed. Then when the press is started after a brief shutdown, the heating units are again automatically appositioned in proper relationship to the paper surface.

Mr. Doyle reports that installations of the new drying equipment are in use on a Cottrell five-color magazine press. Webendorfer offset four-color web press, milk bottle cap rotary press, rotary bag printing and fabricating press and on several special machines.

BOOKS
RECEIVED

Scientific Analysis
(of Stereo Dry Mat Molding)

A COPY of ANPA Research Bulletin No. 20 has been presented to *Printing Equipment Engineer* by Battelle Memorial Institute. The bulletin contains the report entitled *A Scientific Analysis of Stereotype Dry Mat Molding* by Battelle's Dr. R. M. Schaffert. However, the context of the bulletin is the result of studies made some time ago when Dr. Schaffert was employed in the Research Laboratories of Mergenthaler Linotype Co. C. M. Flint, ANPA Research Director, expresses his appreciation for making the report available to the ANPA Laboratories and the entire newspaper business. Mr. Flint states in the bulletin that Dr. Schaffert's work has laid the foundation for further research in the stereotyping process, some phases of which are now being investigated by the ANPA Research Laboratory. Additional progress reports on the subject will be published in the ANPA Research Bulletin as significant results are obtained.

In connection with the dry mat stereotyping process, as everybody knows who is at all familiar with it, there are a number of serious variables in the molding process. Dr. Schaffert's analysis contains discussions concerning these variables. It is purely a layman's remark when it is stated that the chief curse of the newspaper stereotyping process is in the extreme shrinkages required by many papers. At the moment, it appears newspaper management is the greatest obstacle in the path of improvement because of its insistence from plant to plant upon variable and extreme shrinkages. We hope it will be possible for the ANPA Research Laboratory in collaboration with the manufacturers concerned to come up with the answer so as to make it economically possible to control these variables.

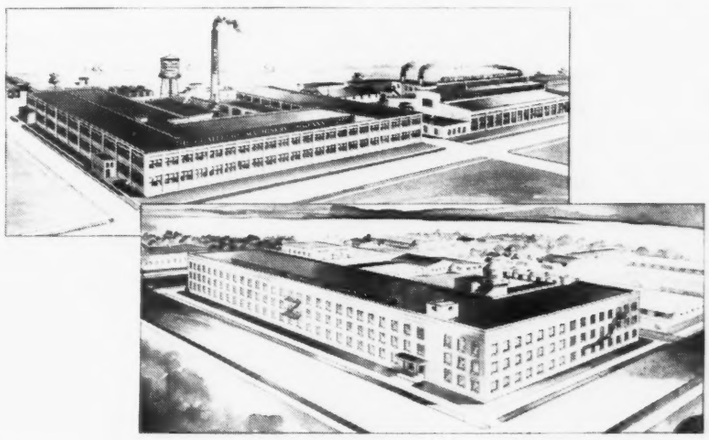
The utility of the stereotyping process, of course, is indispensable to present-day newspaper production. Refining the process is going to be a difficult task.

Challenge Honor Week

The Challenge Machinery Co., Grand Haven, Mich., was recognized with an Honor Week recently by the manufacturers' Committee for Economic Development. The Challenge Honor Week is part of a series singling out various companies for their contribution to the industrial growth and welfare of the community.

In connection with Honor Week, Challenge held open house and conducted tours of its No. 1 plant. There was also an exhibit of many of the products manufactured by the firm.

J. Edgar Lee, President of The Challenge Machinery Co. Grand Haven, Mich.



The Challenge Machinery Co.'s two plants in Grand Haven, Mich., which was recognized with an Honor Week recently by the manufacturer's Committee for Economic Development.

The Challenge Machinery Co., as such, was founded on November 28, 1893, with James L. Lee, President; Charles R. Shupe, Vice President; J. Edgar Lee, Treasurer, and Fred Sholes, Secretary. J. Edgar Lee is now President of the company with J. Wesley Lee, Vice President; B. B. Hanson, Secretary, and R. G. Wilson, Treasurer.

Historically, the operation of the Challenge firm actually started in September, 1870, The plant was destroyed in the Chicago fire of October, 1871, but business was resumed two weeks later in a rented barn. The company continued to grow until the financial crash of 1893 when the firm failed. The Challenge Machinery Co. was immediately organized and incorporated.

In 1903 the company moved to Grand Haven. Since that time the company has tripled its floor space and now occupies two large plants employing 267 persons.

Conference Dates *(with organization names and principal officers)*

American Photoengravers Association — 1950 Convention to be held at Chalfonte-Haddon Hall Hotels, Atlantic City, N. J., October 9, 10 and 11. W. K. James, President; Frank J. Schreiber, Executive Secretary, 166 W. Van Buren St., Chicago 4, Ill.

ANPA Mechanical Conference—1950 Conference to be held at Hotel Statler, Buffalo, N. Y., June 12, 13, and 14. Chairman of the Committee, Edwin H. Evers, Production Manager, St. Louis *Globe-Democrat*. Manager ANPA Mechanical Dept., Vernon R. Spitaleri, 370 Lexington Ave., New York 17, N. Y.

Fifth District Craftsmen's Conference—1950 Conference to be held at Commodore Perry Hotel, Toledo, Ohio, June 16 and 17. District Representative, Alvin F. Friedrich, 730 E. Washington Blvd., Indianapolis, Ind.; Deputy District Representative, John Morehouse, c/o Harris-Seybold Co., 4510 E. 71st St., Cleveland 5, O.; President, John E. Frisbie, The Blade Printing & Paper Co., Monotype Dept., Toledo, Ohio; Secretary-Treasurer, John Fisher, Superintendent, Reardon-Parshall Co., 466 Larned St., N.W., Detroit, Mich.

Great Lakes Newspaper Mechanical Conference—Hotel Schroeder, Milwaukee, January 15, 16, 17, 1950. President W. R. Coddington, Composing Room Supt., Youngstown (O.) *Vindicator;* Secretary Al. P. Oberg, Flint (Mich.) *Journal;* Arrangement Chairman J. E. McMullen, Pressroom Supt., Milwaukee *Journal;* Chairman Mfrs. and Suppliers Committee, George Morrison, Morrison Co., 125 W. Melvina St., Milwaukee 12, Wis.

Illinois Newspaper Mechanical Conference — President Arthur Kramer, Joliet (Ill.) *Herald-News;* Secretary-Treasurer, William L. Augspurger, Peoria (Ill.) Newspapers, Inc.

Intl. Assoc. Electrotypers & Stereotypers — A. P. Schloegel, Executive Secretary, 701 Leader Bldg., Cleveland 14, Ohio.

International Association of Printing House Craftsmen—1950 Convention to be held at Hotel Stevens, Chicago, September 10, 11, 12 and 13. President, Russell J. Hogan, Plant Manager, Blanchard Press, New York, N. Y.; Executive Secretary, Pearl E. Oldt, 18 E. Fourth St., Cincinnati 2, Ohio.

International Typographic Composition Association—1950 convention, Chicago, Sherman Hotel, Sept. 14, 15 and 16. President, Frederick H. Lutz, Lutz Composition, 93 Centre St., Brockton 35, Mass.; Frank M. Sherman, Executive Director, 1015 Chestnut St., Philadelphia 7, Pa.

Iowa Daily Newspaper Mechanical Conference — 1950 meeting in Ottumwa, Ia. President, Howard (Red) Lee, Composing Room Supt., Ottumwa (Ia.) *Courier;* Secretary-Treasurer, Paul F. Kamler, Mechanical Supt., Clinton, (Ia.) *Herald*.

Kansas Newspaper Mechanical Conference — 1950 Conference to be held at Kansan Hotel, Topeka, Kan., September 30 and October 1. President, G. M. Harris, Salina (Kan.) *Journal;* Secretary-Treasurer, Larry Miller, 701 Jackson St., Topeka, Kan.

Lithographers National Association — 1950 Convention to be held at Edgewater Beach Hotel, Chicago, September 7, 8 and 9. President, Randolph T. Ode, President, The Providence Lithograph Co., Providence, R. I.; Executive Director, W. Floyd Maxwell, 420 Lexington Ave., New York 17, N. Y.

Missouri Newspaper Mechanical Conference — Secretary-Treasurer, O. K. Hammitt, Mechanical Supt., Moberly (Mo.) *Monitor-Index*.

National Association of Litho Clubs — 1950 convention to be held at Copley Plaza Hotel, Boston, April 14 and 15. Executive Secretary, William J. O'Holleran, Assistant Supt., Myercord Co., 5339 W. Lake St., Chicago 44, Ill.

National Association of Photo-Lithographers — 1950 Convention to be held at The Shoreham, Washington, D. C., October 25, 26, 27 and 28. Executive Vice President, Walter E. Soderstrom, 317 West 45th St., New York 19, N. Y.; Executive Secretary, William J. Stevens, 317 West 45th St., New York 19, N. Y.

National Graphic Arts Education Association — 1950 convention, Chicago, Sherman Hotel, Sept. 21, 22 and 23. John G. Henderson, President; Fred J. Hartman, Educational Director, 719 Fifteenth St., N. W., Washington 5, D. C.

National Graphic Arts Exposition—International Amphitheatre, Chicago, September 11 to September 23, 1950. Headquarters for National Graphic Arts Exposition, Inc., at Room 802, 105 W. Monroe St., Chicago. President, A. E. Giegengack; Secretary, S. Frank Beatty, Graphic Arts Assoc. of Illinois, Chicago.

National Printing Equipment Association, Inc. — President, R. Verne Mitchell, Harris-Seybold Co., 4510 E. 71st St., Cleveland 5, O.; James E. Bennet, Secretary, 140 Nassau St., New York 7, N. Y.

New England Mechanical Conference — President, Arthur M. Kohler, Production Mgr., Waltham (Mass.) *News-Tribune;* Secretary-Treasurer, Walter C. Crighton, Comp. Room Supt., New London (Conn.) *Day*.

Northwest Mechanical Conference — 1950 Conference, Hotel St. Paul, St. Paul, Minn., March 11, 12, and 13. President, Joseph J. Cory, Chief Composing Room Machinist, St. Paul (Minn.) *Dispatch* and *Pioneer Press*. Secretary-Treasurer, Ralph Carson, Dunwoody Industrial Institute, Minneapolis, Minn.

Pacific Mechanical Conference —1950 Conference to be held at Fairmount Hotel, San Francisco, May 6, 7 and 8. President, Fred Gross, Mechanical Supt., San Francisco *Chronicle;* Vice President for the Pacific Northwest, Harry Hale, Production Mgr., Portland (Ore.) *Oregonian;* Secretary for the North, Edw. N. Conley, color press foreman, San Francisco *Chronicle;* Secretary for the South, Fred J. Moyer, Los Angeles *Daily News*.

PNPA-NJPA Joint Mechanical Conference —1950 Conference to be held at Fairmount Hotel, Atlantic City, N. J., April 14 and 15. Conference director, Theodore A. Serrill, PNPA Associate Manager, Telegraph Bldg., Harrisburg, Pa.

Printing Industry of America — 1950 convention, Chicago, Palmer House, Sept. 17, 18, 19 and 20. James R. Brackett, General Manager, 719 Fifteenth St. N. W., Washington, D. C.

SNPA (Eastern Div.) Mechanical Conference — Secretary, Tom Tanner, c-o SNPA, P.O. Box 1569, Chattanooga 1, Tenn.

SNPA (Western Div.) Mechanical Conference — 1950 Conference to be held at Texas Hotel, Fort Worth, Tex., February 5, 6 and 7. Chairman, George N. Guthrie, Pressroom Supt., Little Rock (Ark.) *Gazette;* Vice Chairman, George Woodman, Production Mgr., Fort Worth (Tex.) *Star-Telegram;* Secretary, C. W. Tabb, 621 Texas Bank Bldg., Dallas, Tex.

Technical Association of the Lithographic Industry — (TALI)—1950 meeting to be held April 24 and 25 in Rochester, N. Y. President, Michael H. Bruno, Lithographic Technical Foundation, Glessner House, 1800 So. Prairie Ave., Chicago 16, Ill. Secretary-Treasurer, Geo. W. Wilhelm, 814 N. East Ave., Oak Park, Ill.

1950—

A Year of Optimism

(By Ray C. Cook, Sales Director, Printers Equipment Div., Hamilton Mfg. Co., Two Rivers, Wis.)

FOR all too long, top management in the printing industry has looked upon the composing room as a necessary evil—an overhead expense which was costly but essential. In a majority of plants, the product of the composing room has been regarded as an expense item same as rent, heat, light or janitor service. The only products really sold have been paper and impressions.

Fortunately the trend is changing rapidly. Top brass in the industry is beginning to view the product of the composing room as a definitely salable product and awakening to the shortcomings of composing rooms which have been sapping away their profits.

Most composing rooms have grown like Topsy. As needs have developed, composing room equipment has been added. However, on arrival, in place of installing the new equipment in proper relation to work flow of the other equipment, it has merely been located in the first open space at hand, with little or no regard to the efficiency and step-saving values involved. The result: many composing rooms require a workman to go all the way from home plate to home plate, a complete circuit of the bases to get his bat.

For many years the Hamilton Mfg. Co. has been endeavoring to bring to the attention of management of the printing industry the need for two things insofar as composing rooms are concerned:

1. The need for proper composing room arrangement with respect to workflow and in the relationship of one piece of equipment to another, to save valuable floor space and above all to increase the efficiency and productivity of manpower.
2. The need for modernized composing room equipment with its labor-saving and step-saving features to implement a properly laid out composing room.

Two booklets have been produced and offered by Hamilton to the industry: *Composing Room Layout*, a booklet setting forth the fundamentals of layout as a guide toward efficiency in the composing room; a bulletin called *Clean House for Profits*, which contains floor plan sheets ruled to ¼ in. squares for drawing floor plans of your composing room, plus all the needed templates of the items of equipment used in the composing room. Both publications are yours for the asking.

Every indication points to an adequate equipment supply in 1950. We feel that 1950 will see reasonably prompt deliveries. There are no indications of any important price changes, either up or down. The Hamilton Mfg. Co. has no revolutionary products in the making for the coming year.

It is our studied opinion that now is the time to buy the equipment you need to keep costs and production in balance. To delay the purchase of needed labor-saving equipment is to pay for it in wasted effort and loss of production, wastes and losses which increase as time goes on and still leave you without the benefits now available.

Appointment of C. A. Loefgren as manager of Harris-Seybold Co.'s Western District has been announced by Ren R. Perry, general sales manager. Loefgren has been manager of the company's Chicago branch since June, 1949. The Western District is comprised of the states of Illinois, Wisconsin, Iowa, North and South Dakota, Kansas, Nebraska, Minnesota and parts of Indiana, Michigan, Montana, Wyoming, and Colorado. Headquarters for the Western District are at Harris-Seybold's Chicago offices and showrooms, 555 W. Washington Blvd.

Harris - Seybold's Western District Manager is C. A. Loefgren.

Photoengravers Research

Gene C. Meston, Capital City Printing Co., Des Moines, Ia., was re-elected president of Photo-Engravers Research, Inc., at a meeting of the board of directors held recently in conjunction with the organization's Fourth Annual Meeting in New York. Other officers elected were First Vice President E. Bartlett Brooks, Wayne Color Plate Co., Dayton, Ohio; Second Vice President Addis Dempsey, Donovan and Sullivan Co., Boston; and Secretary-Treasurer George F. Hoffman, Dixie Engraving Co., Savannah, Ga. Members of the new board of directors are: Charles L. DeBevoise, Sterling Engraving, New York; Charles Wilhelm, Lincoln Photo-Engraving Co., Philadelphia; and Dr. Marvin C. Rogers, R. R. Donelley and Sons Co., Chicago. J. Homer Winkler of Battelle Institute, Columbus, Ohio, was appointed by President Meston to serve as executive director of the organization.

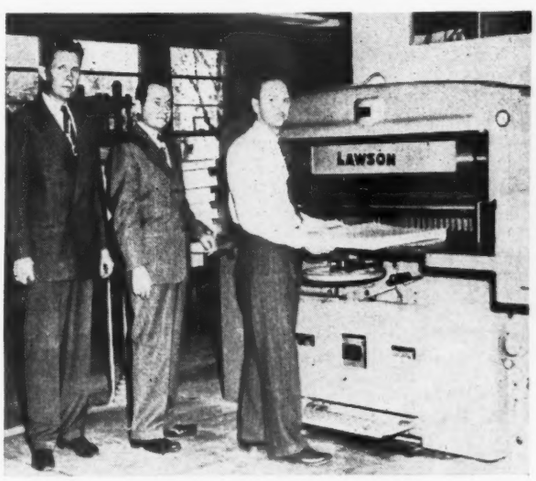
A report on the research on photo-engraving problems now in progress at Battelle Institute and a discussion of possibilities for future research featured the meeting. Emphasis will be given in the next few months to studies on the electrolytic etching of copper, with particular attention to evaluation of the commercial possibilities. It was decided to make the subjects of zinc and magnesium etching the next major problems for research at Battelle.

Dr. Rogers was appointed chairman of the Research Committee. He will be assisted by Mr. Wilhelm; W. C. Addison, Keystone Photo Engraving Corp., New York; R. W. Schrott, Conemaugh Engraving Co., Johnstown, Pa.; Ralph Yeomans, Brigdens, Ltd., Toronto, Canada; and Everett C. Bierman, Charlotte Engraving Co., Charlotte, N. C.

The new membership committee will be headed by Mr. Brooks and will include: T. F. Griefzu, Graphic Arts, Inc., Philadelphia; Mr. DeBevoise; A. L. Ross, R. R. Donnelley and Sons Co., Chicago; Homer L. Green, Wilson Engraving Co.; and Eugene Salmon, Executive Secretary, Southeastern Photo-engravers Assoc.

Pittsburgh Group Elects

Walter J. Bauer, head of Caslon Press, Inc., was elected president of the Printing Industry of Pittsburgh, Inc., at the organization's annual election meeting recently. He succeeds John M. Baird, of Tarentum, Pa. Others elected to a one-year term of office in the organization include Weldon D. Smith, Republic Press, vice president; Ross M. Blair, Smith Brothers, Inc., secretary; and Francis A. Roney, Colonial Press, treasurer. Robert H. Caffee was named national director, and will represent the group at PIA meetings.



Installs Lawson Cutter— Announcement has been made of the recent installation of a 52 in. Lawson Paper Cutter at the University of New Mexico Printing Plant in Albuquerque, N. M. Shown at the cutter from left to right: Hugh W. Bishop, salesman for A. E. Heinsohn Co., distributors for the E. P. Lawson Co. in the West; Dan C. Minnick, Manager, and James P. Komzak, Bindery Foreman, both of the University's printing plant.

Flush-mounted Engravings In Pica Sizes

By H. J. CHAMBERLAND

THE printing industry looked with favor upon the introduction of flush-mounted photoengraving as a means of lowering production costs, particularly in publication work. It took some time to convince many printers that the cemented plate definitely would not come off the block in the course of a press run. Fortunately, the expanding use of the flush-mounting principle has dispelled this fear. These remarks have reference to the conventional hardwood, pressed sawdust blocks and the newer wood block with plastic laminations on top and bottom surfaces. Every new mounting has presented an additional cutting problem because of inability to produce a reasonably smooth cut, with little or no burr on the edges of the metal plate itself.

For many years the printer has been wishing for engravings trimmed to pica measurements. He had to accept engravings in inch or near-pica measurements. How else could the engravers attempt to please all the people concerned? He received the copy measured in inches and the scales on his camera were likewise set in inches so he had no choice but to give the printer finished cuts predominately trimmed to inch, or fractional-inch measurements.

One of the first to appreciate the value of flush mounted engravings was Paul Clark of the Standard Engraving Co., Toledo, O. A few years ago he started working on the idea of developing a method and a tool for producing flush-mounted engravings trimmed to pica measurements. As a result, flush-mounted engravings to pica measurement have arrived.

The inventor realized, however, that his project was only half done unless he simplified it by substantially improving the accuracy and quality of cut and thereby eliminate some of the customary steps in processing. Having accepted the bandsaw method for reasons well known in many engraving and printing plants, it was decided that experts in modern bandsaw practice were in position to make recommendations that would meet related requirements. The DoAll Company of Des Plaines, Ill., already had the answer in one of its high speed contour sawing machines except for a number of details necessary to adapt it to this new application. Developing a band that could cut the mountings with accuracy and yet leave a smooth finish on both block and plate was routine to DoAll's engineers. The outcome is the Pica Master.

In Fig. 4 is the complete equipment in action, showing the micrometer pica-calibrated adjustable gauge with the operator moving the mounted cuts in points and picas to take the first or guiding cut. As previously mentioned, the purpose of this technique is to minimize the number of customary operations. Exclusive of nailing, which of course does not concern a flush mounting, sizing, scoring, beveling, burring, circular sawing and trimming operations are now eliminated. The efficiency of this procedure starts with the copy entering the office so let's go back to the cropping stage as shown in Fig. 1.

After the copy has been scaled for the camera and crop marks have been indicated, the copy goes to the artist who crops it on one side and across the bottom or (top) depending on where the white line is most visible. The white line and even an indication of such is often objectionable, and right-angle cropping squares have been developed to eliminate this condition. It will be noted that the cropping angles are being placed on a photograph to crop the bottom and one side. A transparent square is used as a guide in laying on the white pre-gummed "cropping angles." A square is thus established as reference or base line to work from for stripping the film on the light table. When the copy reaches the gallery, the operator need not shoot a larger negative than necessary because it is already cropped. The negative now goes to the stripper.

The stripper first places a special plate glass on his light table. This plate is 18 in. by 24 in. and is ruled over the entire surface in squares of 3 picas each. This ruled glass serves as a guide, on top of which the stripper places his regular stripping glass. When the regular stripping glass is laid over the top of this special pica-ruled glass, the stripper proceeds to strip his negatives in such a way that the white cropping marks line up with the line that he sees through his glass, as in Fig 2. In this way he is stripping all his negatives square with each other and can easily line up groups of negatives in a straight line. Then when it comes to sawing the finished plate it will be done in the least number of cutting operations. This, of course, saves metal and mounting material because the negatives can be placed very close to each other. The amount of material removed by the bandsaw is 1/32 in. wide.

Having secured the finished plates to the block with thermoplastic bond under heat and pressure (and the latter could be a combination of wood, lead, magnesium and/or plastic insofar as the precision band is concerned) the mounting is now ready for the first cut guided by straight lines as already established by the cropping and mounting of the negative.

After completing the guiding cut, the work is turned around in the holder or fixture and the operator sets the micrometer adjustment to the pica measure desired. Not only are all cuts square and parallel with each other, but the finish is sanded-like and there is no burr on the edges of the plate. However, should there be a slight burr, it is automatically forced into the wood block by the cutting action of the high speed band.

It should be made clear at this time that the contour sawing machine, as applied to this type of work, is not necessarily limited to use of the pica system and flush-mounted plates for it may be used with nail-mounted engravings. As is shown in Fig. 3, and insofar as accuracy and quality of cut are concerned, results are the same as obtained in Fig. 4.

Contour sawing machines of the type herewith concerned were originally intended to perform cutting duty far more severe and complicated than with engravings. As the term "contour" implies, the chief function of the equipment is to shape, outline or fabricate materials and not merely slice or cut them off. Therefore, because of the fact that all non-metals as well as the light metals are economically bandsawed at high speeds, this machine is often subjected to velocities of 5000 f.p.m. or 2000 f.p.m. in excess of the 3000 f.p.m. set speed recommended for photoengraving applications.

Neither to be overlooked is the quality of the cutting tool if it is to resist all strains to which it is to be subjected. In

New IPI Printing Ink Plant—The International Printing Ink Div. of Interchemical Corp. has begun full scale printing ink production in its new $2½ million plant in Elizabeth, N. J. R. W. Smith, IPI President, reports complete transfer of all ink making equipment to Elizabeth from IPI's former factory in Brooklyn, N. Y. Above is shown the 12½ A. tract of land on which is housed the more than four acres of floor space for ink making, laboratory and office facilities. Single story construction applies throughout the plant, except for the varnish section where kettles tower three stories high. Access to railroads and major highways is a feature of the location.

Your LINOTYPE Representative can help you cut costs 6 ways

1. **Help Increase Composing-Room Efficiency.** By making slight changes in plant arrangement, greater plant efficiency can often be achieved. Composing-room operation, copy handling, machine location and many factors which can cut costs are part of your Linotype representative's warehouse of information. He can help coordinate other productive elements in the composing room in order to achieve peak efficiency.

2. **Help Create Economical Expansion Plans.** You will find that your Linotype representative is competent to offer suggestions for entire expansion programs that will mean economy and efficiency in production. Whether your plans call for simple or complex changes, you will find your Linotype representative's experience invaluable to you.

3. **Suggest Production Aids That Cut Costs.** New production aids are available to help cut production costs. Many are applicable to existing Linotype machines. Your Linotype representative will be glad to suggest the devices that are best suited to your Linotypes and your needs.

4. **Cut Costs With Typographic Planning.** The greatest amount of versatility can be secured with the minimum investment from the proper analysis of your typographic requirements. Your Linotype representative can help show you, for example, how for the price of one you can get two faces that are suitable for a large amount of a certain type of composition.

5. **Suggest Hints and Short-Cuts.** Your Linotype representative knows many short-cuts for making machine adjustments and for obtaining maximum efficiency from your present Linotypes. It will pay you to avail yourself of this knowledge in order to help reduce down-time.

6. **Suggest Renewal Parts That Should Be Stocked.** In order to keep production moving, it is a good idea to have a number of parts on hand for making machine repairs. Your Linotype representative can suggest parts which should be stocked to help you meet practically all situations.

These are a few of the many services that you can get without cost from your Linotype representative. Whatever your composing-room problem happens to be, you will find that your Linotype representative, backed by Linotype Research, will help you find the answer. Call your Linotype representative and find out for yourself how you and your composing room can benefit from his wealth of experience.

LINOTYPE

LEADERSHIP THROUGH RESEARCH

MERGENTHALER LINOTYPE COMPANY, 29 Ryerson St., Brooklyn 5, N. Y.

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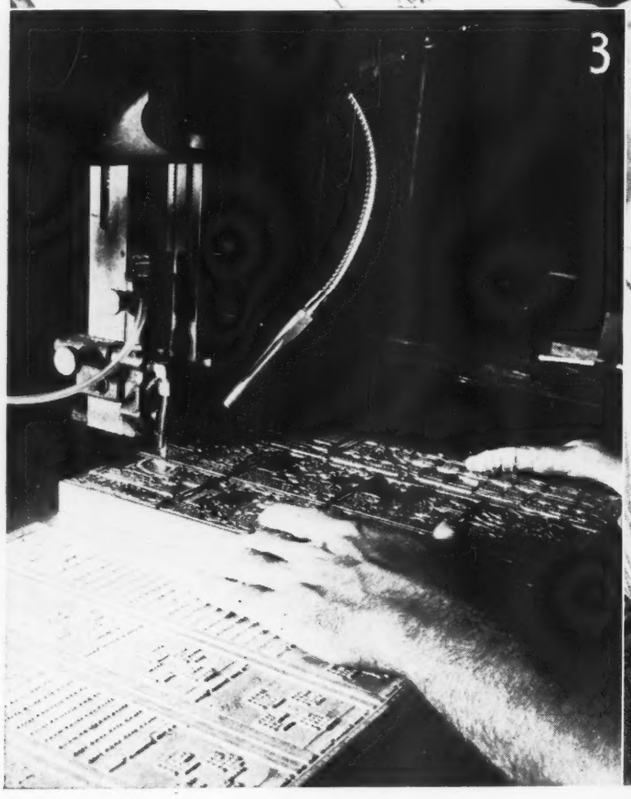


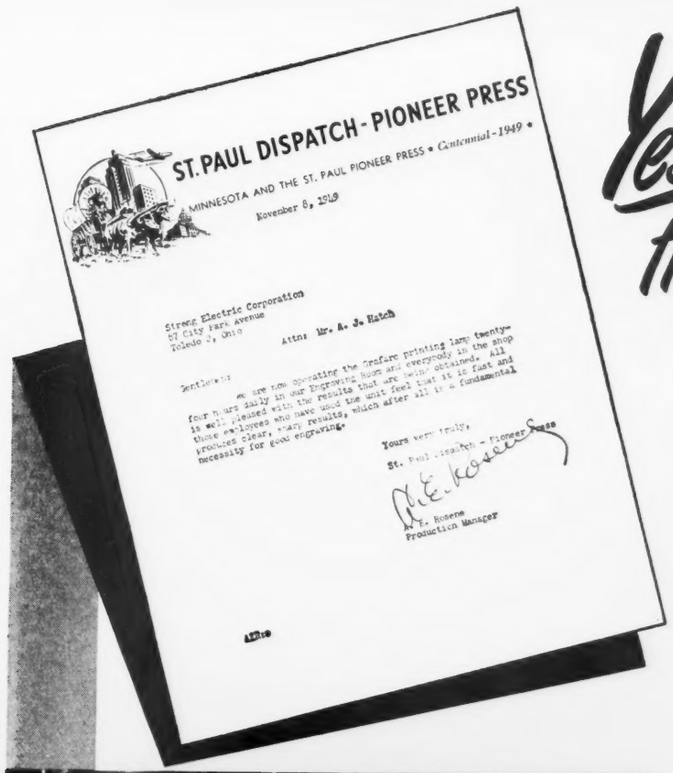
Fig. 1.—In cropping copy for the photoengraver to permit making cuts to flush-mounted pica measurements, the artist uses cropping angles to establish reference lines to work from in connection with engraver's stripping operation.

Fig. 2.—This figure shows a section of photoengraver's stripping glass on the light table. The ruled guide lines on the underneath glass insure that all negatives are relatively square to expedite cutting along the 3-pica spaced lines with the DoALL bandsaw from the finished plate.

Fig. 3.—The assembled flat has been engraved on metal, and has been bonded with thermoplastic to the wood mounting. Here the operator is cutting apart the engravings. The bandsaw may be used to cut apart and/or trim to size the cemented or nailed engravings.

Fig. 4.—This close-up of the DoALL Pica Master bandsaw shows the operator setting the Clark Micrometer Pica-calibrated workholder or gauge to selected measurement. The gauge works in slots in machine's work table and travels parallel with the cutting action of the saw band.

it must be incorporated certain special characteristics not found in the average bandsaw blade. Saws recommended for precision work of this nature must be made with precision, meaning that such phases of processing as milling and setting the teeth must be constantly under control. Most significant is the scientific heat treating of the bands, whereby the accuracy of the setting operation is preserved, hardness of teeth is uniform and tooth hardness depth extends to the gullet line but not beyond. A saw so heat treated will resist many hours of continuous cutting, especially on engravings. By the time it proves inefficient it has paid for itself many times over and is then replaced by a new one.


ST. PAUL DISPATCH - PIONEER PRESS

MINNESOTA AND THE ST. PAUL PIONEER PRESS • *Centennial - 1949* •

November 8, 1949

Strong Electric Corporation
307 City Park Avenue
Toledo 2, Ohio

Attn: Mr. A. J. Hatch

Gentlemen:

We are now operating the Grafarc printing lamp twenty-four hours daily in our Engraving Room and everybody in the shop is well pleased with the results that are being obtained. All those employees who have used the unit feel that it is fast and produces clear, sharp results, which after all is a fundamental necessity for good engraving.

Yours very truly,
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Music—

How It Is Printed

Zinc Plate—I.
Music Type—II.
Musicktype—III.
Typemusic—IV.

By DR. R. R. VOORHEES

TYPEMUSIC—IV

ABOUT ten years ago W. A. Fowler developed an idea for the production of music plates by means of several typewriter-like machines for the production of music copy that can be shot for offset or other printed reproduction. His patented machines are made only for his firm's use. The firm, Typemusic, Inc. is located at 1854 N. Halsted St., Chicago.

Utilize Typewriter Idea

The machines are adaptations of the familiar typewriter idea, but they are somewhat larger. The machines are of two types. Some are used for typing on paper as in standard typewriters. Others are designed to type or print on the paper which is supported against a flat platen because of the character of some of the work as will be discussed later. A special carbon ribbon is used to print the image on the paper.

As is the case with every other method used for preparing the music copy, the first step is to mark off the music Ms. into lines and pages so that the Ms. will fit into full pages and not result in a few measures remaining for an additional page.

Typing the Music

When the music Ms. has been marked off it is taken to the various machines for what might be called typing in the music and the lyrics. The lines forming the staves of the music are achieved in two ways. In some instances, paper with the lines already printed on them is used. In other instances, the lines making up the staves are put on the sheet by one of the typing machines.

Unlike other music reproduction processes, all copy sheets are made one size, 9 in. by 12 in. Any enlargement or reduction necessary for sheet sizes is achieved when the actual printing plate is made.

The order of the steps followed in producing the copy from which the printing plate is to be made is much the same as with other platemaking processes. First the notes, including the cleffs and signature are typed on the sheet of paper. Where expression marks are required, another machine is used to add them. Where chords are to be numbered and where fingering is to be added as in the case of teaching pieces, these are typed by still another machine. And where slurs and ties are required in the music these are added by a special machine that does nothing but this.

After the music including expression marks and other necessary marks have been typed on the copy, the lyrics are put in in their proper place by means of a machine that types nothing but words.

The title of the piece of music as well as the one or two by-lines are added to the plate by the familiar photo-stripping process and are not done on any machine.

In the case of notes with stems extending upward or downward, they are typed on a machine the paper of which is backed up by a flat platen. The typing of the words or lyrics is done on a machine carrying the paper on a cylinder just like the familiar typewriter. The same is true of some of the other machines although definite details are withheld as to which are using the paper flat and which use it on rollers.

Photostating the Copy

When the music copy from which the printing plate is to be made is finished, it presents a smudge hazard with respect to proofreading. The original copy as typed off on these assorted machines is photostated and the photostat is sent to the author, composer or publisher for proofreading.

Correcting the Photostat

When the photostat is returned with corrections noted, the original copy that had been typed off and from which the photostat was made is corrected. If there are several corrections in a single line, the entire line may be retyped and pasted over the original line. Other corrections are made by the paste-up method as well. In some cases where notes have been put where no notes should be, the erroneously placed notes will be painted out with opaque white in the usual way and the proper notes placed in their proper places either by typing them in on the machine or by adding them by the paste-up method.

After the original music copy has been corrected, it is then ready to go to the platemaker for shooting by offset or photoengraving.

In music where words in a foreign language are required, the lyrics are set on the Vari-typer or similar machine and the lyrics added to the original music copy by the usual paste-up method.

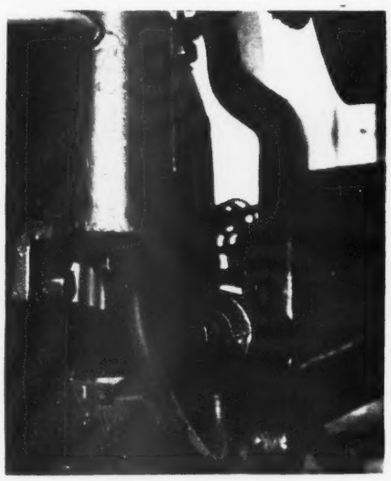
For band, orchestra, octavo and other music of a different size from the standard sheet music size of 9 in. by 12 in., the reduction is made when the offset plate is made. In cases where the printed music is required to be larger, then the enlargement is made when the printing plate is shot. This sometimes happens in the case of wall charts for teaching music where larger sizes are required.

(Concluded)

Extra Pump Improves Feeding of Extra Heavy Stock

PRINTERS operating Miller feeders sometimes have trouble in running very heavy stock such as cardboard because there doesn't seem to be enough suction to hold the stock properly in its travel to the platen and back again. That was the trouble in the job shop of the Durant (Okla.) *Weekly News* until H. H. Price, foreman of the shop, hit on a plan to remedy the trouble.

He had an extra pump exactly like the one on the 12x18 Miller feeder so he bolted it to the brace rod at the rear lower part of the press frame. Then he connected the hose from the pump that was a part of the feeder to the top connection of the extra pump. The hose from the bottom connection of the extra pump was connected to the bottom connection of the regular pump. This enabled the two pumps to work in unison and furnish a stronger and steadier flow of air.



Mr. Price leaves the feeder hooked up with the two pumps all the time. When it is desired to run lighter stock, for which a single pump would be sufficient, he regulates the pressure of the air with the intake valve rather than to disconnect the additional pump.

Patents

For The GRAPHIC ARTS

Covering patents issued November 1, November 8, November 15, November 22 and November 29.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Binding, Cutting, Perforation

2,487,031. AUTOMATIC BACK GAUGE SPACER. Spacer is provided for work table of guillotine type paper cutters. The automatic back gauge spacing mechanism will adjust the back gauge at successive individually predetermined intervals after successive cuts. The operator need do nothing more than place the initial pile of paper on the machine against the back gauge and then operate the paper cutter so that the knife moves up and down a number of times to cut the desired number of piles. The back gauge automatic spacing mechanism automatically moves the back gauge the proper distance at the end of each cut and before the next one is started. Invented by Frederick W. Seybold, Westfield, N. J. Assigned to E. P. Lawson Co., Inc., New York, N. Y. Application January 15, 1948. 40 claims.

2,489,825. MACHINE FOR CUTTING INDEX NOTCHES is applicable to books of any size which may be notched rapidly and accurately with little effort on the part of the operator. Edge of a book on a supporting table is held against guides. Notch is produced by a cutter carried by a rocking device. Cutter head is yieldingly held in raised position. An actuator moves the head and includes a latching member connected to the device, to cause actuator and head to be disengaged from each other when the device has rocked far enough to complete a cutting stroke. Invented by Henry Sieb, Hammond, Indiana. Unassigned. Application April 19, 1947. 14 claims.

Composing Room Equipment

2,486,406. PHOTOGRAPHIC TYPE COMPOSING MACHINE having stroboscopic character scanning system uses a carrier having characters of double width which moves continuously in one direction and a masking member which moves in the opposite direction at the same speed. The latter has the same number of slits as there are characters on the carrier which slits are narrow with respect to the width of the characters and are arranged transversely of their direction of travel. Thus the characters are scanned by the slits as they move into photographic position. A light is mounted on one side of carrier and a receiving surface is on the opposite side to receive an image of each character. A manually operable selector is used for picking out the characters to be printed. Only one character is imprinted for each revolution of the carrier. Invented by René Higonnet, Saint-Cloud, France. Unassigned. Application August 11, 1945; in France July 11, 1944. 4 claims.

2,487,890. TYPEWRITER FOR JUSTIFYING LINES. The invention relates to typewriters of the "Varityper" character. It includes a movable paper carriage, and a differential letter-spacing escapement cooperating with the escapement rack for variably controlling the spacing movement of the paper carriage in accordance with the width of the character typed. Justification mechanism imparts movement to the carriage relative to the escapement rack and means controlled by the carriage travel set the justification mechanism. A friction lock is operable from the typewriter keyboard for holding the justification mechanism in any set position. Invented by Charles W. Norton, West Orange, N. J. Assigned to Ralph C. Coxhead Corp., New York, N. Y. Original application July 8, 1944. Divided, and this application June 26, 1946. 11 claims.

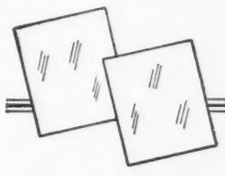
2,489,458. PHOTO-COMPOSING TYPE BLOCK is provided for use in a body

Specially Designed Rolls Assure ACCURATE Gauge

Precision mirror polished rolls are used to produce ZOMO ELECTRIC ZINC and A-Z ALLOY in our mill designed and built for the manufacture of *only* metals for photoengraving.

Nothing, however, is left to chance . . . the close production control of these metals includes minute checking every step of the way. From the electric induction furnace to the packing case, A-Z ALLOY and ZOMO ELECTRIC ZINC are made for ideal performance.

Leading supply houses carry stocks of these metals.



ZOMO ELECTRIC ZINC

A-Z ELECTRIC ALLOY

ATLANTIC ZINC WORKS, INC. • BROOKLYN 31, N. Y.

type assembly device for assembling body type in high-grade proofs for display headings, lay-outs, offset printing, zincs and the like. It comprises two piles of transparent plastic material having interposed between them an opaque paper-thin negative provided with a transparent character. Negative extends continuously to both side edges for the full width of the block and terminates within the top and bottom edges of the block. The block may be assembled as a unit with other similar blocks. One longitudinal edge of the block is grooved to receive an interlocking portion of an adjacent block. Invented by Joseph F. Murphy, West Roxbury, Mass. One half to Edward F. Murphy, Jamaica Plain, Mass. Application April 14, 1948. 1 claim.

Feeding, Folding, Delivery

2,486,703. PIN CONTROL FOR WEB FOLDING MACHINES. Folder pin apparatus is provided in which the pins on a revolving cylinder are actuated by a solenoid having parts of minimum mass. The solenoid is energized from a condenser, connected to a source of electrical energy and to a switch operated in time relation to the revolving cylinder, in order to provide an instantaneous, relatively high current when the connection is made. By this construction extremely high speeds of operation are claimed. Control of both the time and duration of the operation of the pins is effected by a circuit making and breaking means which may comprise a commutator rotated in time relation with the cylinder carrying the folder pins and having a conducting segment mounted on the cylinder, and an adjustable contact for engaging the segment. Invented by Nathaniel Bishop, Fairfield, Conn. Assigned to Time, Inc., New York, N. Y. Application March 13, 1947. 9 claims.

2,487,404. MECHANISM FOR MULTI-FOLDING PRINTED WEBS. A folder for use with a web-fed rotary printing press produces multi-folded printed products in the form of a signature comprising separate sections having closed heads. The folder affords great flexibility in the choice of web runs to produce different products with the same mechanism. Thus two 32-page signatures, with sheets locked together and with their tops or heads closed, may be delivered; with thicker paper it may be desirable to produce four 16-page signatures. Mechanism includes a series of sheet cutting cylinders and cross folding cylinders, a collector cylinder and a longitudinally folding mechanism of the chopper type. Invented by Adolph M. Zuckerman, New York, N. Y. Assigned to R. Hoe & Co., Inc., New York, N. Y. Application May 10, 1945. 2 claims.

Plate Making

2,486,834. MATRIX is of the type disclosed in patent No. 2,277,825, to Freund. It is said to be foolproof against damage and deterioration by being fully protected from atmospheric conditions, physical contact, and cleaning fluids. The matrix comprises a body portion, an opening through it connecting two side faces, a character bearing plaque mounted in the opening, a transparent cover member engaging the walls of the opening and sealing the plaque from physical contacts, and an air space between the cover member and the plaque to facilitate cleaning. Invented by Herman R. Freund, Brooklyn, N. Y. Assigned to Intertype Corporation, Brooklyn, N. Y. Application July 20, 1945. 6 claims.

2,487,623. CAMERA COPY BOARD. The copy board is for holding large copy and is useful in connection with photoengraving and photomechanical cameras. A supporting frame is provided at either end of the structure. A supporting frame is provided at either end of the structure. Each frame has a broad heavy base and a bearing near the upper part of the frame in which is rotatably journalled a pivot shaft projecting laterally from a plate fixed to the side portion of the copy board. The board itself comprises a rigid flat sheet covered on one face with a layer of sponge rubber on which material to be copied is laid when copy board is open. A glass sheet overlies the sponge rubber layer. It is hinged to one edge of the baseboard. Glass cover plate may be locked in copy retaining position or in copy loading position. Counterbalance means assist in raising and lowering the glass cover. Invented by James W. White, Roslyn, N. Y. Assigned to Powers Photo Engraving Co., Glen Cove, N. Y. Application January 29, 1947. 3 claims.

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SOUNDS EASY... BUT HOW DO YOU KNOW IT WILL WORK?
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THAT'S FOR ME. I HATE THIS JOB .....
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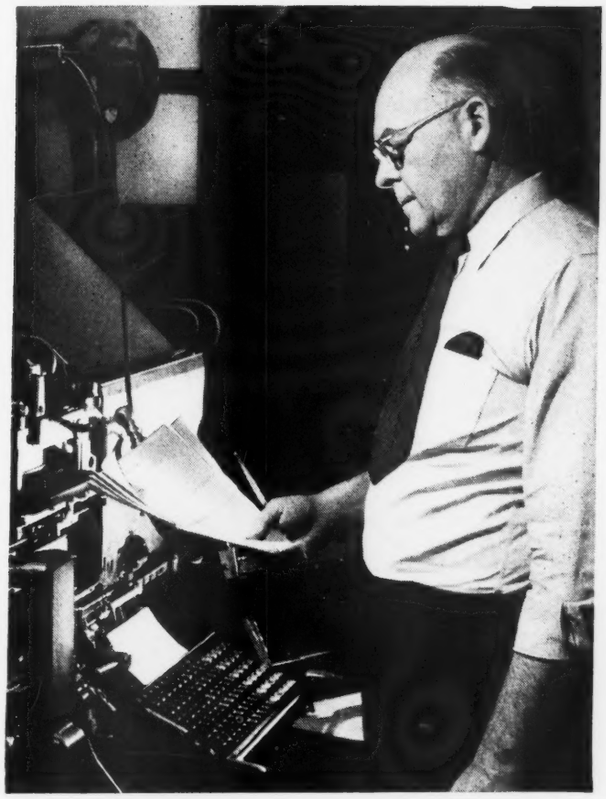

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2,489,691. ENGRAVING FACSIMILE SYSTEM. Device for making printing plates directly from a subject to be reproduced is shown. Subject is scanned with a light beam. There is a light-sensitive cell in the path of the beam, a rotatable shaft, a cylinder secured thereto and a printing plate carried by the cylinder. An image-forming tool is normally spaced from the plate. The plate and tool are movable to scan said plate in synchronism with the subject scanning means. A metallic disc is secured to the shaft and has a plurality of circumferentially-spaced teeth. A metallic annulus concentric with the disc has teeth corresponding to and spaced from the other teeth. Annulus is electrically insulated from the disc. Tool-operating means impart an oscillatory movement to the tool toward and away from the plate as the teeth of the disc and annulus move into and out of alignment. Tool is caused to penetrate the plate in response to variations of the light striking the light-sensitive cell. Invented by George Washington, Jr., Morristown, N. J. Unassigned. Application February 8, 1947. 7 claims.

Printing Inks

During the five weeks covered by this report, no patents have been issued for this heading.

Printing Presses and Equipment

2,487,177. OIL SEAL for use on vibrating rotary drums is of the type covered by patent No. 2,085,185. The seal is in the form of a sleeve with an internal spiral groove defined by spiral ribbing dimensioned to embrace drum shaft. Sleeve has a gravity drain opening in its lower part which intersects root of the groove and outboard end of inside of sleeve is flared outwardly to progressively enlarge the internal diameter of the ribbing toward such end. The flare extends inwardly to intersect ribbing for a distance which is at least as great as the space occupied by first spiral convolution of the groove so that oil sheared from shaft upon axial inward movement of latter is completely deposited for drainage in the groove. Invented by William M. Pollock, Glen Ellyn, Illinois. Assigned to The Goss Printing Corporation, Chicago, Illinois. Application July 1, 1945. 7 claims.

2,489,588. INKING MECHANISM is particularly for platen printing presses of the Gordon type. The mechanism comprises the combination of a shiftable ink-distributing plate and a roller movable thereacross in contact with the plate. The plate may be automatically lowered out of contact with the roller. The plate lowering means is effective during a portion only of the travel of the roller thereacross. The plate may be shifted while it is out of contact with the roller. Invented by Charles F. Root, Cleveland, Ohio. Assigned to The Chandler & Price Co., Cleveland, Ohio. Application March 10, 1945. 13 claims.

2,489,589. INKING MECHANISM is particularly for printing presses of the Gordon type. The patent discloses in inking mechanism for printing presses, the combination with a surface to be inked, an inking roller movable transversely thereacross, a track disposed alongside the surface and a wheel for the roller adapted to run on the track with the roller in contact with the said surface. The track includes a section pivoted at one end for oscillatory movement in a vertical plane. The free end of the section is notched to interfit with the adjacent end of the track extending therebeyond and is formed with vertical slots. A transverse pin in said adjacent track-end engages the slots. Invented by Charles F. Root, Cleveland, Ohio. Assigned to The Chandler & Price Company, Cleveland, Ohio. Application March 26, 1945. 6 claims.

2,489,712. BED MOTION FOR PRINTING PRESSES includes two rotating gear segments which are rotatable in opposite directions, a pair of bars mounted for reciprocating movement in the press beneath the bed of the press. The bed of the press has a plurality of gear racks. Predetermined racks of the bed are engaged by the gear segments in driving the bed in two directions in the press. Oscillating gear segments which are actuated by the reciprocating bars engage other gear racks of the bed for reversing the bed at the limit of travel in both directions. The arrangement of the racks on the bed and the gear segments is such as to maintain progressive engagement of the segments with the racks in driving the bed back and

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forth in the press. Invented by William M. Kelly, Westfield, N. J.; Delia Kelly executrix of said William M. Kelly, deceased. Unassigned. Application June 11, 1947. 16 claims.

2,489,791. PRINTER'S BLANKET is particularly for offset printing. The resilient impression layer of ink-retainable material has the physical properties of soft, vulcanized rubber resistant to the chemical action of inks and solvents. A flexible backing, integral with the impression layer, is made of woven cellulosic material united by rubber. At least one layer of the backing is formed of glass in the form of filamentary glass elements spun into inextensible yarns to provide resistance to stretch both laterally and longitudinally of the blanket, and preferably woven to provide a fabric. Invented by Lewis R. Liles, Cuyahoga Falls, and Edgar W. Chapman, Akron, Ohio. Assigned to The B. F. Goodrich Company, New York, N. Y. Application October 16, 1944. 6 claims.

2,489,876. CONTROLLER provides self-braking of alternating current slip ring type motors commonly employed for rotogravure presses without recourse to plugging. The risk of power reversal of the motors is avoided, which is important since such presses are equipped with ink removing knives or doctor blades making it highly desirable to insure against even a few degrees of reverse movement of the press in stopping. Controller comprises an inch push button switch, a run push button switch, a brake relay, a relay and a drum type controller. In conjunction with electric braking, mechanical braking is effected until press closely approaches zero speed and then mechanical brake is reliably released. Invented by Cyril P. Feldhausen, Wauwatosa, Wis. Assigned to Cutler-Hammer, Inc., Milwaukee, Wisconsin. Application June 26, 1947. 9 claims.

EXECUTIVE Ls

Elmer C. Pratt, 75, former Mechanical Superintendent of the Camden (N.J.) *Courier-Post*, passed away on November 30 at his home in Haddonfield, N. J., after a long illness. Mr. Pratt retired from the *Courier-Post* in 1947 after working on the papers since 1920. In January 1949, he received a 50-year pin from the International Typographical Union. Born in Marlboro, Mass., he served as a printer's devil under his father, Stillman B., who was senior member of Pratt Brothers, publishers of the Marlboro *Mirror* and 40 other Mass. weekly newspapers. His first executive position was with the Attleboro (Mass.) *Sun*, from 1894 to 1896. From 1896 to 1899 he was in charge of the Mansfield (Mass.) *News* and Rockville (Conn.) *News*. He later was associated with the Newport (R.I.) *News*; Waterbury (Conn.) *Republican*; Worcester (Mass.) *Telegram*, and the Phillipsburg (N.J.) *Press*. In 1911, he was placed in charge of the Providence (R.I.) *News*. He left here to take a position with the Ithaca (N.Y.) *News*, and shortly afterwards took charge of the Springfield (Ill.) *News Record*. Surviving Mr. Pratt are two daughters, Mrs. C. C. Testerman of Haddonfield, N. J., and Mrs. M. D. Leonard of Washington, D. C.

V. MacFarland, Lithography Executive with American Greeting Publishers, Cleveland, has resigned to accept the position of Production Manager with the A. Carlisle Co., San Francisco. MacFarland was with American Greeting Publishers for two years. Before that time, he was general manager of Stevenson-Foster Co., Pittsburgh printers.

H. F. Yeakel, representative for the International Paper Sales Corp. for more han 30 years, was tendered a dinner recently by more than 50 Western Pennsylvania daily newspaper publishers. Present on behalf of the International organization were Earl R. Wheatley, Vice President, and Robert B. Lewis,

From the waist up this man is a fine investment!

● The "know how" in his head and the skill in his hands enable this man to earn profits for you. But when he uses his legs and his feet while he hunts for leads, slugs, rules, sorts and spacing materials, *down* goes his production and *up* go your costs.

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successor to Mr. Yeakel. Representing the Pennsylvania Newspaper Publishers' Assoc. were President, Robert S. Bates, Co-publisher of the Meadville (Pa.) *Tribune-Republican*, and Theodore A. Serrill, PNPA Associate Manager. Ohio clients of International were represented by A. A. Hoopingarner, Publisher of the Dover (O.) *Reporter*. Mr. and Mrs. Yeakel plan to spend the winter in Florida.

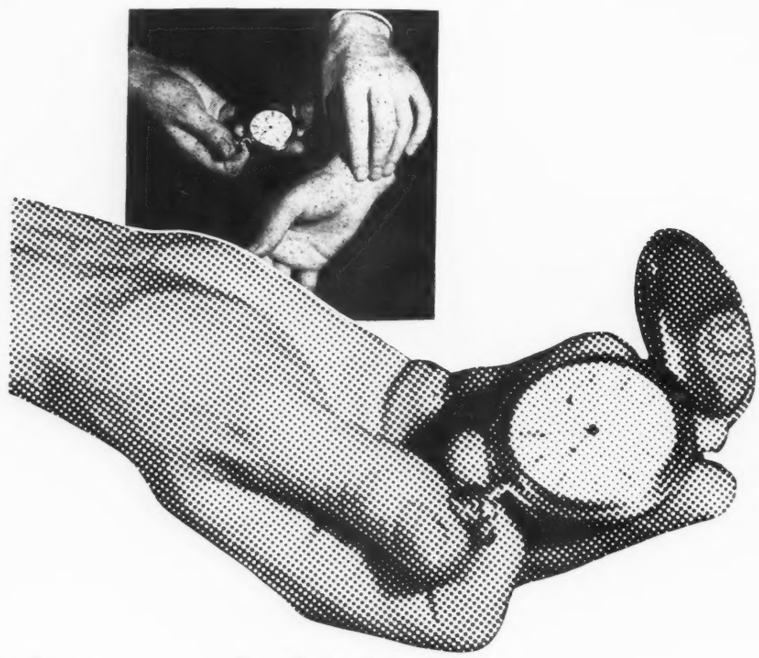
J. Homer Winkler, Technical Advisor of Battelle Memorial Institute, Columbus, O., and who is also Second Vice President of the International Association of Printing House Craftsmen, some time ago became an owner of the Tri-Village Pub. Co. in Grandview Heights, a suburb of Columbus. He is treasurer of the company and a director. His direct responsibilities include supervision of the production and advertising solicitation activities of the paper. The firm publishes the *Tri-Village News*, a weekly newspaper, prints high school papers and does general commercial printing.

Completing 40 years of government service, John A. McLean, former Superintendent of Platemaking and more recently Assistant Production Manager at the Government Printing Office, recently received his certificate of retirement from Public Printer John J. Deviny. At a gathering of G.P.O. officials in honor of Mr. McLean, the Public Printer recounted a long list of McLean's achievements which included pioneering in the use of plastics for electrotyping and for printing plates. Mr. McLean is a former official of the International Association of Printing House Craftsmen and an active participant in the research program of the Printing Industry of America. After a vacation in New England and the South, he intends to continue his activities in the industry and will probably be available in a consultant capacity. The Public Printer announced the appointment of Harry D. Merold, Director of Planning Service, to McLean's position as Assistant Production Manager. Other appointments made by Deviny include the designation of Emmett I. Hill as Director of Planning Service and Daniel H. Campbell as Director of Purchases.

John A. McLean, Assistant Production Manager at the Government Printing office, who retired recently after 40 years service.

John T. Renshaw has been elected Vice President of E. P. Lawson Co., according to an announcement by David W. Schulkind, President. Mr. Renshaw will take charge of and make his headquarters at the Mid Western branch of the Lawson company with offices in Chicago at 628 S. Dearborn St. He previously served as manager of the Philadelphia branch and as a representative

John T. Renshaw, Vice President, E. P. Lawson Co.



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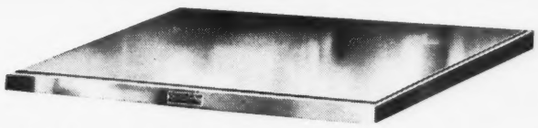

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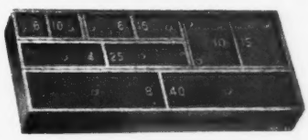

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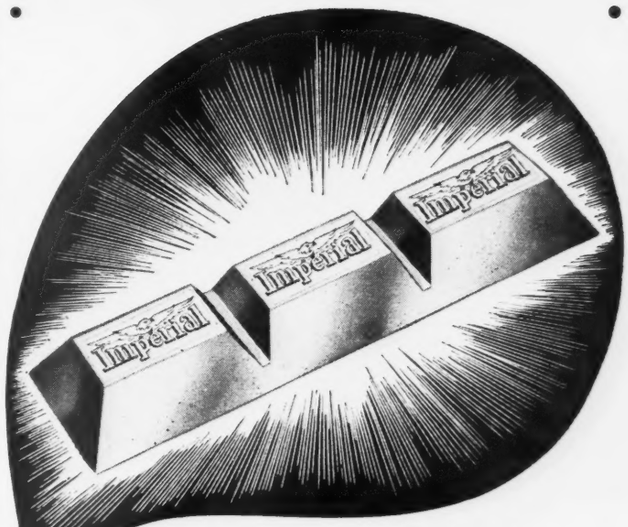

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in the field for several years. Before joining the Lawson organization, Renshaw was with the Miller Printing Machinery Co. He attended Gettysburg College and during the last war was employed on the Manhattan Project.

The appointment of Abraham Remstein as a special representative in connection with the buying of white metal scrap and residues was announced recently by Federated Metals. Since 1924, Mr. Remstein has been superintendent of the manufacture of white metal alloys at Federated's Newark (N.J.) plant. He has been associated with the company since 1914 and most recently served as assistant to the plant manager at Newark.

Herbert H. Johnson, Superintendent of Reserve Lithograph & Printing Co., Cleveland, is now associated with American Greeting Publishers, Cleveland, as Lithography Executive. He was 1949 president of the Cleveland Litho Club. He is well known in the Cleveland metropolitan area—is well liked and is sure to succeed in his new job.

Kenneth Gebbie, President of the Virkotype Corporation, passed away on November 6 at New York Hospital, Cornell Medical Center, following a several weeks' illness. Mr. Gebbie had been associated with the firm since 1930 and president since 1944. His home was in Millington, N. J.

Announcement has been made by Frank X. McCormick, Manager of American Type Founders' Cleveland branch, of the transfer of Mike M. Vukelich, Sales Representative, from ATF's Los Angeles office to the Cleveland branch. Mr. Vukelich will work out of Cleveland in the north central part of Ohio. He formerly owned and operated a printing business in Aitkin, Minn., as well as the Wolf Point (Mont.) *Herald-News* and the Roosevelt County (Mont.) *Popular Standard*. He is a graduate of the Dunwoody Institute.

Mike M. Vukelich, transferred to ATF branch at Cleveland.

James H. Sweeney, for many years Western Manager for Lanston Monotype Machine Co., died of pneumonia in Chicago on December 11, 1949, following a brief illness. Mr. Sweeney began his career with Monotype in 1909 as a stenographer in the Chicago office. Within two years he became co-manager with Richard Beresford, and when the latter was transferred to New York in 1912, he was appointed Western Manager and so remained until his death.

Joint Operation

It has been announced by H. H. Heinrich that executives of H. H. Heinrich, Inc. and Altair Machinery Corp. have entered into an arrangement whereby both firms will be operated jointly, but each firm's name will be retained in separate identity. K. R. Sunderhauf, President of Altair Machinery Corp. has been elected vice president of H. H. Heinrich, Inc., and in addition is functioning as sales manager for the combined companies. The new arrangement became effective December 1, 1949.

Impression Slur

(Continued from Page 27)

spring in the cylinders and their shafts. On a 17 in. by 22 in. press, for example, the pressure produced by 0.004 in. impression may be as much as 1500 lbs. between the cylinders. As a result, the cylinders are sprung apart before enough pressure is produced for good printing.

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The pressman's only recourse is to move the back cylinder adjustment up still further, possibly to 0.008 in. or 0.010 in. However, if this produces a good impression, it is more than likely that the true impression is only about 0.004 in. The best rule to follow, therefore, is to increase the impression gradually until a good impression is just obtained. In other words, use a minimum of pressure.

Uneven Slurring

So far it has been taken for granted that the cylinder surfaces are perfectly true and that the blanket and plate are uniform in thickness. If this is not the case, slurring can occur on some areas of the sheet and not on others due to local excessive pressure. Such a condition calls for a thorough checking of the press, and truing up of the cylinders if necessary. Once this is done, low spots in the blanket can be built up with tissue to provide uniform squeeze pressure. However, if high spots producing excessive pressure are the result of an embossed blanket, it is best to put on a new one.

Summary

Of several types of slur, the most common one is due to excessive back cylinder pressure. Its main characteristics are: appears as a "drag" at the back edge of the ink impression; usually noticed first as a "filling-in" of halftone shadows; seldom seen in highlights; often uniform over the sheet but does not occur in streaks. Shows on the blanket but not on the plate when it first appears. Most commonly encountered when running coated or enameled stock. Precaution lies in running ink as spare as possible, use of minimum impression pressure, and correct packing of blanket and plate.

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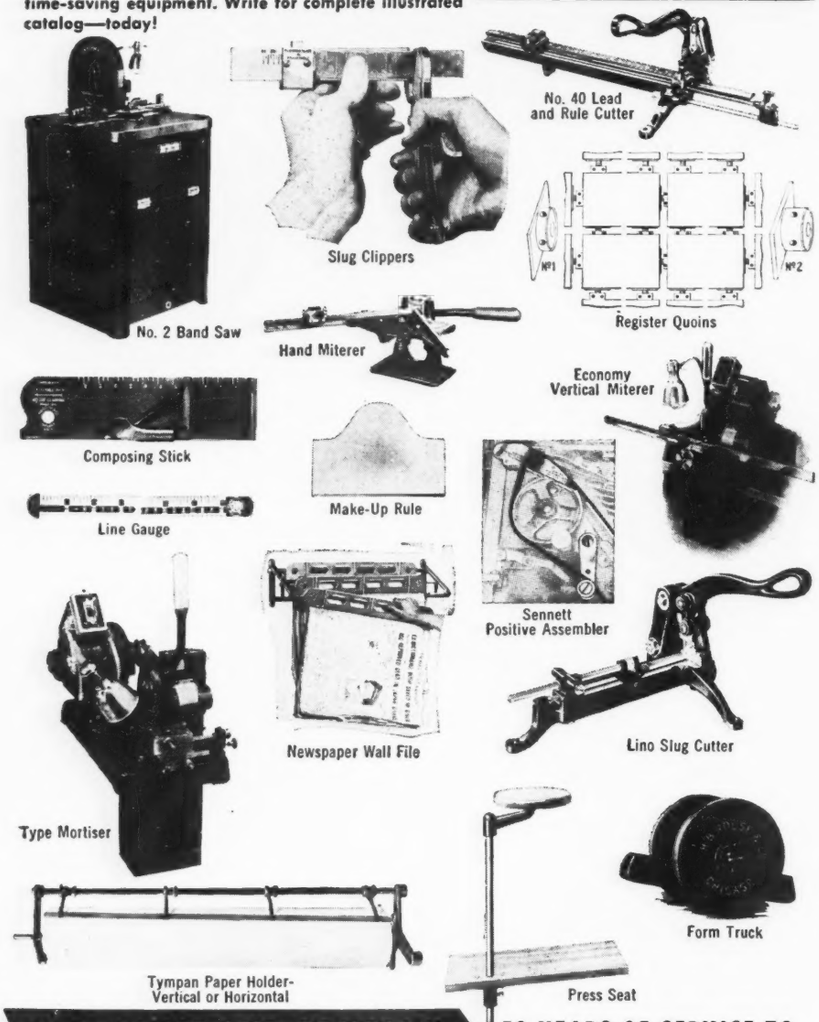

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50 YEARS OF SERVICE TO THE PRINTING INDUSTRY

Research-Engineering Council

(Continued from Page 30)

graving standards for two and four-color work in commercial and publication work. A report upon the subject is about to be published. Mr. Chanko expressed the appreciation of his group for the fine cooperation in this work extended by platemakers, ink manufacturers, the National Association of Printing Ink Makers, and the American Association of Advertising Agencies. In cooperation with NAPIM, the joint gathering came up with standards for four-color process printing. He stated any first-down color can be used. The standards are intended for use by the entire industry. Their use is based upon a recommendation—not upon compulsion. They are specifically designed for use by photoengravers, electrotypers, magazines, newspapers, and advertising agencies. Use of the standards will result, he said, in lower costs and more economical production.

Materials Handling

Elliott Donnelley, Chairman of the Materials Handling Research group, presented an enthusiastic report of his group's activities. He said that his group represented a cross-section of the industry and consisted of representatives of large publishers in the commercial printing industry, paper manufacturers, National Paper Trade Assoc., traffic men of the American Association of Railroads. It is the intention of the group to formulate a monograph on materials handling. Study is being given, among other elements, to skids, banding materials, returnable roll cores, pallets and types of pallets, paper inspection procedures, concealed and paper mill damage. He related that last summer his group traveled across New York state visiting paper mills. In one instance he engaged a switch engine to maneuver a carload of paper; the car doors were left open so the members could see what happened to the paper contained within the car. Mr. Donnelley stated he was convinced of two things: (1) It is desirable to furnish useable information for the smaller printer, and (2) More effective group work can be done by meeting in a smaller city.

Russell B. Hogan, recently Plant Manager, of the Blachard Press, New York, could not represent the Presswork Research group. Ernest Schmatolla, of the Publishers Printing Co., New York, reported for him. He stated a press lubrication chart would be available after the

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Cat. R100 (roughing stone. . . . . 100 grit)
Cat. R180 (roughing stone. . . . . 180 grit)
Cat. R280 (roughing stone. . . . . 280 grit)
Cat. S400 (semi-finishing. . . . . 400 grit)
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Cat. S800 (semi-finishing. . . . . 800 grit)
In ordering stones, designate catalog number desired.

The stone for fine polishing is Cat. F1000. Due to its popularity the production of the F1000 has not kept up with its demand and therefore Cat. F1000 is not always readily available.
Stones are also obtainable for grinding and polishing steel cylinders; also for grinding doctor blades in Standard Process Doctor Blade Grinder, size of this stone being 5" x 1" x 4" bore.

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first of the year. The group is now working on a press makeready report.

The Printers Roller Research group was reported upon by Frank A. Reppenhagen in the absence of Chairman Carl G. Bingham. Among the objectives of this group are: (1) Uniform specifications for roller cores, (2) Investigation of a substitute for glycerine in roller compounds, (2) Eliminate roller problems due to variables in humidity and the weather.

Raymond H. Lecraw, Production Mgr., and Morris Kantrowitz, Technical Director, U.S. Government Printing Office, discussed interestingly the research work being conducted in the world's largest printing plant.

W. W. Garth, jr., president of Graphic Arts Research Foundation, discussed organization of the Foundation and stated that the technical advisory committee had been secured from men in the Graphic Arts industry. He asserted, with reference to development of his organization's phototypesetting machine "one of the chief endeavors will be to get type characters on paper cheaper."

Education and Training

Alfred Davis, Assistant to President Mark Ellingson of Rochester Institute of Technology, stated the chief concern of RIT's Department of Publishing and Printing is to furnish education *and* training to some 200 Graphic Arts students out of the 700 students attending the Institute. The main objective is to combine research with training work.

Dr. William C. Walker, Chairman of the Ink Research group, at the afternoon session amplified the report previously presented by Vice Chairman Erickson at the morning meeting. Among the objectives of the Ink Research group is to establish a universal technical language with respect to ink: a lexicon will be published at a later date. He enumerated the chief objectives of his group and stated that one of them is to determine the behavior of ink when it is put on paper.

J. Homer Winkler, Technical Adviser, Graphic Arts Div., Battelle Memorial Institute, presented a complete report

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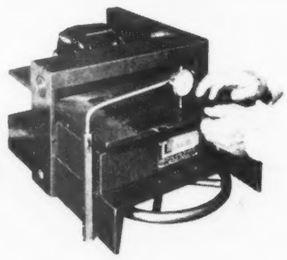

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(with the exception of certain confidential work) of the research work being conducted by the Institute.

Reporting for C. M. Flint, ANPA Research Director, was William Baumrucker, jr., Chairman of the ANPA Research Committee. One of the major objectives of the ANPA program is on printability, or what happens when ink meets paper. This work is being conducted at the Institute of Paper Chemistry, Appleton, Wis. A complete look at the stereotype process will be had. Another objective is the making of photoengravings at high speed. A study is being conducted on the heretofore uncontrolled variables in the pressroom to see if there are some things which should be worked on. It is expected that a number of instruments and gauges developed with the cooperation of the Research Dept. will be available soon.

Bindery Research

Vice Chairman Edward J. Triebe spoke on Bindery research. He mentioned that among the objectives is a program of developing adhesives, quick building-in equipment, coordination with machinery manufacturers, finished-book testing, all types of binding; stamping inks especially those used on covers, to permit immediate further processing, static control and offset, and typography and platemaking.

Frank M. Sherman, Executive Secretary of the Intl. Typographic Composition Assoc., reported in detail about the research program recently instituted by his association.

R. M. Leekley of Time, Inc., discussed his firm's research program.

Technical Literature

Chairman J. Homer Winkler of the Publications Committee said that the work of the Committee is concerned with the improvement of Graphic Arts technical literature. Obviously, it will be impossible for the Committee to review all technical articles published, but if anyone wants specific information about a particular subject, the Committee will endeavor to supply it. Another objective of the Committee is to publish a report containing a listing of research projects in June 1950. He mentioned that a subcommittee would be appointed for handling abstracts of technical articles.

Static Electricity

Mr. Winkler also reported upon the meeting held October 14 at Battelle Memorial Institute, Columbus, O., for the purpose of considering static electricity. Present at the meeting was a group of 52 people representative of all industries affected by static. The nuisance phenomena of static was explained. Mr. Winkler mentioned one executive stated it cost the textile industry a million dollars per day of operation to try to eliminate and to put up with static electricity. A detailed report is in the course of preparation and will be published later.

Trip to Kodak Park and RIT

On the second day of the meeting, those attending the Research and Engineering Council meeting were taken on a tour of inspection of the Graphic Arts Research Facilities of Eastman Kodak Co. Before the tour, however, everybody assembled in the auditorium where Dr. C. E. K. Mees discussed late developments in the platemaking field. During the trip through the laboratories, the new cellulose acetate offset plate and a zinc lithographic plate with a new experimental resist.

After lunch had been served in the Eastman restaurant, the visitors were taken for a look-see at Rochester Institute of Technology, under arrangements made by Alfred Davis, Dr. Ellingson's capable assistant.

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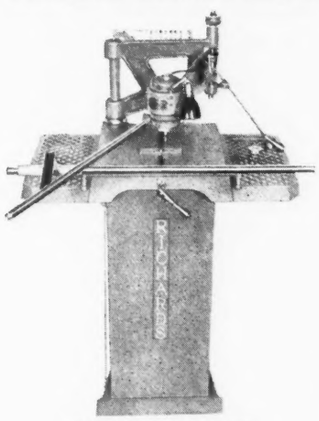

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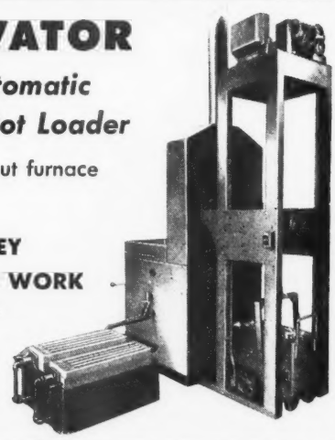

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June A.N.P.A. Mechanical Conference Issue

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